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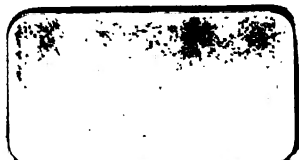
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I N D E X

TO THE

EXECUTIVE DOCUMENTS

OF THE

HOUSE OF REPRESENTATIVES

FOR THE

THIRD SESSION OF THE FORTY-FIFTH CONGRESS,

1878-'79.

IN 18 VOLUMES.

**VOLUME VIII—REPORT OF THE SECRETARY OF THE NAVY
AND THE POSTMASTER-GENERAL.**

**WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1879.**

INDEX TO HOUSE EXECUTIVE DOCUMENTS.

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REPORT

OF THE

SECRETARY OF THE NAVY;

BEING PART OF

THE MESSAGE AND DOCUMENTS

COMMUNICATED TO THE

TWO HOUSES OF CONGRESS

AT THE

BEGINNING OF THE THIRD SESSION OF THE FORTY-FIFTH CONGRESS.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1878.

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REPORT OF THE SECRETARY OF THE NAVY.

WASHINGTON CITY, D. C.,
Navy Department, November 30, 1878.

SIR: I have the honor to lay before you the regular annual report of the condition and operations of the Navy Department, including the expenditures of the last and the estimates for the next fiscal year.

Since the last annual report the condition of the Navy has been considerably improved. There are now in commission 28 cruising-ships, 1 steamboat, and 5 sailing-vessels, making 34 in all. These are in condition for active service, except the Gettysburg, now in the Mediterranean squadron, which, in consequence of deterioration in her iron plating and the recent breaking of a shaft, will probably require more repairs than it would be good economy to make. This will reduce the number to 33 now in commission as cruisers and needing no immediate repairs.

There are 6 vessels, including 1 monitor, recently put out of commission for repairs, all of which can be made ready for sea again in the course of a few months. The work will be done with all possible dispatch. Besides these, there are 13 needing repairs somewhat more extensive and which it will require more time to make. But the whole of these 19 vessels can be repaired and put also in thorough condition with the present appropriations and those asked for the next fiscal year, and, therefore, without any additional charge upon the Treasury. That is, if the same appropriations shall be made for the next fiscal year as have been made for the present, the department will be enabled to make the necessary repairs upon all these vessels, so that the number of cruisers will be to that extent increased. When this is accomplished the effective cruising force of the Navy will be 47 steam and 5 sailing ships, making the total number 52.

The number of monitors now ready for service is 13, and as the one recently put out of commission can be soon repaired, and the Miantonomoh can be completed out of existing appropriations, the number may be properly fixed at 15. Two torpedo-boats are now also ready for service.

It will be seen, therefore, that without any increase of appropriations beyond what is asked for—that is, within the means under the control of the department with the current appropriations—the total fighting

force of the Navy will be 51 cruising-ships, 15 monitors, and 2 torpedo-boats, making in all 68.

But this does not show the whole naval force that could be put in service in case of necessity. The 4 double-turreted monitors and 1 single-turreted now in progress—the Puritan, Amphitrite, Monadnock, Dictator, and Terror—could be completed without much delay, with the necessary appropriations for that purpose. Six cruising-ships, upon which repairs are not at present contemplated—the Colorado, Wabash, Franklin, Florida, Minnesota, and New York—could be soon put in condition as fighting-ships if necessity required it. And this being done, the fighting force of the Navy would be 57 cruising-ships, 20 monitors, and 2 torpedo-boats, to which could be added, in case of imminent necessity, 2 other steam and 2 sailing vessels, thus making the total number 83. The number might still be increased, however, by utilizing 8 large iron tugs, of over 300 tons each, now at navy-yards and other stations, which could be converted into gun or torpedo boats, and thus make the whole number of war-vessels of all classes 91.

There are 32 steam and sailing vessels now unfit for use for warlike purposes, although 4 of these might, if necessity demanded, be put in condition for temporary service at sea. Of these, 4 have been in use nearly 60 years, having been built before the year 1820, and 15 were built before the war, leaving 14 only that have been built and 2 that were purchased since the beginning of the war. Of those built during the war, 10 were constructed with great rapidity and under the pressure of the most urgent necessity, and consequently out of timber not sufficiently seasoned to insure their durability, even to the average life of other vessels. Their decay, therefore, has been unavoidably rapid. And as it would not be good economy to undertake the repair of vessels so far decayed as the greater part of these now are, it would be better that they should be sold or broken up, and authority conferred upon the department to use the proceeds for the repair of such other vessels as may need them, so as to keep the Navy in its present condition of efficiency, as nearly as possible, without additional drafts upon the Treasury. To this number of vessels unfit for fighting purposes may be added 4 iron-clads, which should also be disposed of in the same way. If, then, there should be added to the fund thus produced the proceeds of the sales of waste material, the business of the department would be greatly facilitated without new appropriations.

SQUADRONS.

The EUROPEAN SQUADRON remains under the command of Rear-Admiral William E. Le Roy. Of the ships which composed it, the Gettysburg is much out of repair, and has recently broke a shaft in the Mediterranean. It is deemed impracticable, in consequence of her condition, to attempt a voyage across the Atlantic with her at this time, and it may ultimately become necessary to dispose of her in Europe, if

it shall be found that she could not be economically repaired. The terms of enlistment of the crews of the *Vandalia* and *Marion* are about to expire, and they have been ordered home, to be supplied with new crews. Upon this being done they will be disposed of as necessity may require. The *Wyoming* and *Enterprise* have been ordered to take their places, and the *Quinnebaug* will also be sent to this squadron so soon as she has been sufficiently tried to assure her fitness for sea duty. With these exceptions, this squadron remains as at the date of the last report.

The **ASIATIC SQUADRON** is still under the command of Rear-Admiral Thomas H. Patterson. Since the last report the *Kearsarge* and the *Tennessee* have reached home, their cruises having expired, and are both now undergoing repairs, and will soon be ready for sea again. The *Monongahela* and the *Richmond* will take their places, the former having already reached there, and the latter being now nearly ready to sail. The squadron, with these exceptions, remains unchanged.

The **NORTH ATLANTIC SQUADRON** is now under the command of Rear-Admiral John C. Howell. Of the ships in this squadron at the last report the *Enterprise* has been withdrawn for service in the Mediterranean, and the *Ossipee* and the *Swatara* are now awaiting repairs. Upon their completion they will remain in this squadron, and the *Shenandoah*, *Wachusett*, and *Kearsarge*, when ready for sea, will be added to it. In order that the effective naval force of this squadron may be appreciated, it should be observed that the following monitors are in condition to be employed at any time to protect the ports on the Atlantic coast, to wit: The *Ajax*, *Catskill*, *Jason*, *Lehigh*, *Mahopac*, *Manhattan*, *Montauk*, *Nahant*, *Nantucket*, *Passaic*, *Wyandotte*, and the *Canonicus*, now at New Orleans. Besides these, the torpedo-boats *Intrepid* and *Alarm* are in commission, the former at New York and the latter at Washington.

The **SOUTH ATLANTIC SQUADRON** remains as at the date of the last report. But as the *Nipsic*, *Galena*, and *Juniata* will be ready for sea during the year, it is contemplated to send one of them to this squadron, and to hold the others for assignment wheresoever the necessities of the service may indicate.

The **NORTH AND SOUTH PACIFIC SQUADRONS** have been united and placed under the command of Rear-Admiral C. R. P. Rodgers. The two squadrons consisted of five vessels at the date of the last report. Since then the *Omaha* has been withdrawn, and is now condemned as unworthy of repair in consequence of decay. The *Pensacola* and *Lackawanna* have both been repaired and are now at sea in good condition. The *Alaska* has been sent out to take the place of the *Omaha*, and the *Tuscarora* is added to this squadron. The *Onward*, which is not in good condition, remains as a storeship at Callao, in Peru. Besides these, the monitor *Comanche* is attached to this squadron, and the *Iroquois*, now undergoing repairs at Mare Island, will, when completed, be also attached to it.

The ships not embraced by assignments to these squadrons are as follows: The *Ticonderoga*, *Franklin*, *Vandalia*, *Marion*, *Constellation*, *Constitution*, *Portsmouth*, *Saratoga*, *Guard*, *Tallapoosa*, and *Michigan*. The *Vandalia* and *Marion*, upon their return, will be refitted for sea immediately. The *Constellation* remains in service at the Naval Academy. The *Constitution* and *Portsmouth* are at Havre, France, in attendance upon the Paris Exposition, and will return home in December. The *Saratoga* has been fully repaired, and is used as a training-ship. The *Franklin* is still a receiving-ship. The *Guard* has just returned home and will need repairs. The *Tallapoosa* is engaged as a transport-vessel between the navy-yards on the Atlantic.

The *Ticonderoga* has been detailed, under the command of Commodore R. W. Shufeldt, for special service upon the coast of Africa and in the East Indian Islands. This service is regarded as especially important in its relations, not merely to international matters confided to it, but to our commercial interests. The officer assigned to this command is peculiarly fitted for the delicate duty confided to him, and the most satisfactory results are expected from his cruise. Besides his other duties, he has been designated to act as a commissioner to adjust a controversy in reference to the boundary-line between the British possessions in Africa and Liberia.

An expedition of a character somewhat kindred to this was fitted out during last summer with the *Enterprise*, under the command of Commander Thomas O. Selfridge. Realizing the obligation of omitting nothing in its power to open up commercial intercourse between all parts of South America and the United States, the department directed a survey of the Amazon and Madeira Rivers. The importance of these rivers as natural outlets for the internal commerce of that country cannot be overestimated. They connect Bolivia with the Atlantic; and the people of that country are beginning to realize the benefits they will derive from an encouragement of their navigation. A company organized in the United States is now engaged in constructing a railroad around the falls of the Madeira, which, when completed, will enable our merchants to carry on a large and profitable trade with the interior. It was deemed important that, before this trade should be developed, the people of Bolivia should be convinced that it would be to the mutual advantage of both countries if commercial intercourse were established between them and the people of the United States.

The expedition was a success in an eminent degree, and reflects the highest credit upon all the officers who had it in charge and upon the crew of the *Enterprise*.

The results are both interesting and instructive, and it is hoped that Congress will provide for the publication of the report of Commander Selfridge.

The city of Para has a population of about 30,000 inhabitants, and bears the same relation to the Amazon River that New Orleans does

to the Mississippi. Its trade will continue to increase as the interior of the country is developed, which, under the liberal policy of the Emperor of Brazil, is now assured. The mouth of the Madeira River is 980 miles above the city of Para, and from there to the falls this river is navigable for steamers of ten feet draught a distance of 1,000 miles. The falls are about 300 miles in length, and when the railroad is completed and the difficulty of passing them removed, easy access to the large rivers which flow through Bolivia will be had. The Amazon is a river of extraordinary dimensions, and a line-of-battle ship can easily ascend it for 1,500 miles from the sea. At a distance of 900 miles from its mouth it has a depth of 50 fathoms. As there is no difficulty about the navigation of this great river, this survey will serve to show its dimensions, and the maps of the Madeira will enable steamers to ascend it at the periods of safe navigation, without relying upon local pilots. It is confidently expected that the most beneficial results will follow this expedition and report.

The Michigan has been employed for a number of years upon the northern lakes. The question whether or no the arrangement of April 28, 1817, in reference to the naval forces of Great Britain and the United States on the lakes remains still in force or has been terminated by the joint resolution of Congress approved February 9, 1865, must rest upon the decision of Congress. The diplomatic engagements between the two governments since the passage of the joint resolution have been considered directory to the department, and in consequence the Michigan has been kept in commission and continued in the service for which she was designed. The vessel is now very much out of repair, and requires extensive work to be done upon her in order to keep her in condition for service. If the obligation of 1817 remains in force, this would require a large expenditure of money, and it would probably be more economical to sell her, and apply the proceeds, as far as they would go, to building a new ship for this special service. These questions are respectfully submitted to Congress.

ESTIMATES.

The appropriations of the present year having been thus far, like those of the last, applied to the ordinary expenses of the service and to such repairs of vessels as are absolutely necessary, and it having been found that they are sufficient for this purpose, the department has not felt itself justified in going beyond them in the estimates for the next fiscal year. These estimates are shown by the following table:

Pay of the Navy	\$7,350,000 00
Pay of civil establishment in navy-yards.....	189,999 50
Ordnance and Torpedo Corps	273,000 00
Coal, hemp, and equipment.....	800,000 00
Navigation and navigation supplies	104,500 00
Hydrographic work.....	46,000 00
Naval Observatory, Nautical Almanac.....	43,800 00
Repairs and preservation of vessels.....	1,500,000 00

Steam-machinery, tools, &c.....	\$800,000 00
Provisions for the Navy.....	1,200,000 00
Repairs of hospitals and laboratories.....	30,000 00
Surgeons' necessaries and Naval Hospital fund.....	95,000 00
Contingent expenses of department and bureaus.....	205,000 00
Naval Academy.....	186,894 45
Support of Marine Corps.....	862,378 50
Naval Asylum, Philadelphia.....	60,809 00
Maintenance of yards and docks.....	440 000 00
Repairs, &c., of navy-yards.....	375,000 00
	<hr/>
	\$14,562,381 45

It will be observed that the total of this amount is \$33,949.75 in excess of the appropriations for the present year. This is for the benefit of the Marine Corps and the Naval Academy. The former is made up of amounts necessary on account of the longevity pay of officers and privates, that of officers on the retired list, pay of clerks and messengers, pay to soldiers for clothing undrawn, increase of pay for leader of the band, and commutation of officers' quarters. The latter is made up of amounts necessary for pay of one mechanic on account of enlargement of laboratory, a small increase of pay to the captain of the watch, on account of his having also to perform other duties, an increase for the expenses of the Board of Visitors, and pay of an additional machinist necessary in the department of steam engineering. No part of the excess is on account of the Navy proper.

EXPENDITURES.

The amount of appropriations applicable to the current expenses for the fiscal year ending June 30, 1878, was \$14,435,152.30. The actual expenses, exclusive of deficiencies, during that period were \$13,306,914.09. Of the unexpended balance on hand June 30, 1878, there remains \$501,272.09 to the credit of the Bureaus of Equipment and Recruiting, Yards and Docks, Ordnance, Navigation, Construction and Repair, Steam Engineering, Provisions and Clothing, and Medicine and Surgery.

The appropriations available for the present fiscal year, commencing July 1, 1878, are \$14,528,431.70. The whole amount drawn from the Treasury from July 1 to November 1, 1878, is \$4,740,544.14; refunded same period, \$70,980.75; which deducted from the amount drawn will show the actual expenditure from July 1 to November 1, 1878, to have been \$4,669,563.39. Expenditure during the same period last year was \$5,190,462.63, showing that of the present year to have been \$520,899.24 less than last year.

Exhibit of expenditure chargeable to Navy appropriations, including deficiencies of 1877-'78.

Date.	Drawn.	Refunded.	Expended.
<i>Appropriations for 1877-'78.</i>			
1877.			
July	\$1,584,059 44	\$6,874 59	\$1,577,184 85
August	1,022,070 04	13,007 57	1,009,062 47
September	1,344,384 27	17,481 61	1,326,902 66
October	1,392,523 65	115,211 00	1,277,312 65
November	1,697,839 59	140,960 35	1,556,879 24
December	1,955,456 96	59,511 17	1,895,945 79
1878.			
January	1,803,967 66	527,064 23	1,276,903 43
February	1,053,471 63	81,446 89	1,022,024 74
March	1,397,547 28	161,132 63	1,236,414 65
April	1,028,375 60	38,271 10	990,104 50
May	1,006,108 36	287,447 93	718,660 43
June	4,079,724 65	496,727 41	3,589,997 24
Total	19,365,529 13	1,897,136 48	17,468,392 65
<i>Appropriations for 1878-'79.</i>			
1878.			
July	1,185,781 89		1,185,781 89
August	1,480,120 70	68,299 11	1,411,821 59
September	1,051,405 39	101 37	1,051,304 02
October	1,022,236 16	2,580 27	1,020,655 89
Total	4,740,544 14	70,980 75	4,669,563 39

Exhibit of expenditure chargeable to Navy appropriations, excluding deficiencies of 1877-'78.

Date.	Drawn.	Refunded.	Expended.
<i>Appropriations for 1877-'78.</i>			
1877.			
July	\$1,584,059 44	\$6,874 59	\$1,577,184 85
August	1,022,070 04	13,007 57	1,009,062 47
September	1,344,384 27	17,481 61	1,326,902 66
October	1,392,523 65	115,211 00	1,277,312 65
November	1,559,464 78	140,960 35	1,418,504 43
December	1,052,343 52	59,511 17	992,832 35
1878.			
January	1,329,244 75	507,905 13	821,339 62
February	907,587 25	26,607 70	880,979 55
March	1,324,879 32	147,987 70	1,176,891 62
April	996,873 37	33,972 67	962,900 70
May	960,890 12	279,749 67	681,140 45
June	1,639,748 55	468,045 81	1,171,702 74
Total	15,124,069 06	1,817,154 97	13,306,914 09

Appropriations for 1878-'79.

1878. July 24. Appropriation warrant No. 316—1879	\$14,092,622 70
1878. July 30. Appropriation warrant No. 317—1879	375,000 00
Naval Asylum, Philadelphia—1879	60,809 00
Total	14,528,431 70

From these tables it will be seen that the total expenditures of the last fiscal year, including the amount appropriated for the deficiencies of the previous year, were \$17,468,392.65. After deducting these deficiencies, which were \$4,161,478.56, the amount chargeable to the expenditures of the year was \$13,306,914.09, as stated in the tables, which was \$767,199.18 less than the actual expenses of the previous year, and \$4,928,677.74 less than the expenditures including the deficiencies of that year, and \$4,630,440.63 less than the expenditures of the year ending June 30, 1876.

NAVY PENSION FUND.

The following statement shows the number and yearly amount or pensions on the rolls June 30, 1878, and the amount paid during the fiscal year:

	On roll June 30, 1878.	Yearly value.	Amount paid for pensions.
Navy invalids	1,781	\$200,944 08	\$199,981 42
Navy widows and others	1,705	306,290 60	302,989 49
Total	3,486	506,234 68	502,970 91

It will be seen by comparing this statement with that of the last fiscal year that the number of pensioners has increased 47, and that the sum they are entitled to draw has increased \$26,576.35, while the total amount actually paid to pensioners has decreased \$24,979.64.

This fund was created by the act of April 12, 1800, which organized the Navy. It consists of money accruing from the sales of prizes, which is irrevocably set apart for the payments of pensions to officers, seamen, and marines. And the faith of the government is pledged to make up any deficiency and to devote the surplus, if any, to making provision for the comfort of the beneficiaries. Under the act of March 2, 1831, one-half of all penalties and forfeitures for trespassing on the public timber lands goes to this fund, but the amount derived in this way is very small.

The prize-money constituting this fund is the one-half reserved to the United States after the other half has been distributed among the captors of the prize, and the surplus of this after payments of pensions the Secretary of the Navy is required to invest, semi-annually, in the registered securities of the United States. By this provision the fund would be entitled to an annual interest corresponding with that paid to all the holders of public securities, but another provision of the existing law provides that the interest shall "be at the rate of three per centum per annum in lawful money." Practically, therefore, the provision for investment in public securities is made inoperative by limiting the interest below what any of them bear. It was otherwise when the interest was fixed at six per cent., as it formerly was. Consequently, inasmuch as the obligation of the government, established when the fund was created, remains unimpaired, it is respectfully recommended that the interest be hereafter increased to at least four per cent., so that the investments may be made in bonds of that class. Navy pensioners are entitled, upon the fund withdrawn from their prize-money, to the same interest as that paid to the public creditors.

BUREAUS.

It is due to the bureaus of the department that special attention should be called to their several reports, wherein the details of the work done by them during the year are given. They show an amount which could not

have been accomplished without the utmost watchfulness and care on the part of the officers in charge of these bureaus. And the economy practiced in their disbursements cannot fail to arrest attention. The total balance standing to their credit at the close of the fiscal year ending June 30, 1878, as previously stated, was \$501,272.10, made up in favor of each bureau as follows :

Yards and Docks	\$40,685 84
Equipment and Recruiting	238,879 20
Navigation	24,750 21
Ordnance	18,526 88
Construction and Repair	37,863 73
Steam Engineering	28,230 09
Provisions and Clothing	102,736 93
Medicine and Surgery	9,539 22
Total	501,272 10

It is also due to the Bureaus of Construction and Repair and Steam Engineering to refer to the amount of work they have respectively done in repairing ships, engines, boilers, &c., all of which is especially set forth in their reports. Seventy-five vessels have been more or less repaired, according to their condition, and ten of them have been thoroughly repaired, together with engines and boilers, and made ready for sea. Two others, the Nipsic and Galena, are in rapid progress toward completion. The machinery of every vessel repaired has been thoroughly overhauled and put in the best condition, and the policy of substituting four-bladed screw-propellers for the various types of two-bladed and patent screws has been initiated. These changes have been attended with the best results, an increased speed of from one to two and a half knots per hour having been obtained, without increase of engine power developed. It is designed to continue these changes until all our vessels are fitted with this type of propeller.

RELATIONS OF THE NAVY TO COMMERCE.

In my last annual report the attention of Congress was directed to the condition of our commerce and the relations borne to it by the Navy. Our rapidly-increasing exports since that time have demonstrated that this country must become the greatest producing country in the world. The area of our improved lands is annually enlarging, keeping pace with our rapidly increasing population and giving assurance that the surplus of our agricultural and manufacturing products will become correspondingly greater every year. Consequent upon this, the skill of our manufacturers, artisans, and laborers will, in the future of our history, be called into still further requisition. And as experience has shown that no nation can afford to leave its commerce unguarded upon the seas, the duty of protecting ours is now greater and more urgent than it has ever been before. This duty is confided to the legislative department of the government, and it would be unjust to assume that, under any exigency of our affairs, it will not be discharged. The American people will not

be likely to accept any condition of things that shall deprive them of those advantages of trade to which their position entitles them; nor is it to be expected that they will be content with any policy that shall put it out of their power to obtain just compensation for their industry and proper reward for their labor.

Not the least of the considerations from which our government derived its existence were the necessities of trade and commerce. In order to avoid conflicting and incompetent regulations by the States, the obligation has been imposed upon the national government to provide for these necessities, not alone by such measures as shall develop our industry to its greatest possible capacity, but by proper maritime protection both at home and upon the high seas. The framers of our institutions were wise enough to know that nations of the largest commerce exercise the greatest influence over the affairs of mankind. With this knowledge to guide them, they constructed the government with reference to this obligation, and conferred upon it such functions as are essential to a just protection of all our industrial interests, with a view to that ultimate commercial supremacy to which, from our geographical position and territorial advantages, we may fairly aspire. And if the government shall fail to do whatsoever it may rightly do to achieve this result, it will be impossible for this country long to maintain its present position in the front rank of nations.

In our earliest legislation in reference to commerce and the regulation of our coasting-trade, preference was given to American over foreign shipping by the exclusion from our registers of all ships built abroad. The degree of protection thus afforded was sufficient to stimulate, not the industry merely, but the ingenuity, of our people, until our registered and enrolled tonnage increased to an extent that threatened the maritime supremacy of Great Britain. For the period of forty years—from 1820 to 1860—American ships carried the average of 81.2 per cent. of the ocean-borne commerce between our own and foreign ports. It was during this period that the vast and unprecedented increase of our shipping took place, rising from 1,280,167 tons in 1820 to 5,353,860 tons in 1860. The decrease in our tonnage and ocean-carrying trade began with the commencement of the war in 1861, and has continued until, during the present year, this large percentage in our favor has been reduced to 26.3 per cent. of freightage; and in the transportation of passengers we retain only 6.7 per cent., whereas we formerly carried nearly all.

Reference to the commerce of the last ten fiscal years, from 1867 to 1877, inclusive, will enable us to realize what we have lost in national wealth from this change. In that period our imports and exports, in the aggregate, amounted to \$11,114,174,044, and the number of passengers carried was 4,741,044. The freightage arising from the imports and exports amounted to \$889,133,933, and the passage money to \$247,971,505, making the total freight and passenger earnings \$1,137,105,438. Of this, ships sailing under foreign flags took 70.1 per cent. of the freightage, and

93.3 per cent. of the passage money, leaving to American ships 29.9 per cent. of the freightage and 6.7 of the passage money. These proportions in amount are respectively :

To American ships, freight earnings.....	\$265, 851, 045 97
To American ships, passage money.....	16, 614, 090 85
Total of American portion	282, 465, 136 04
<hr/>	
To foreign ships, freight earnings	\$623, 282, 887 04
To foreign ships, passage money	231, 357, 414 17
Total portion of foreign ships.....	\$854, 639, 201 21

These results show that the earnings and profits of this ocean carrying trade have been transposed, and that vessels sailing under foreign flags have now within 2 per cent. of what American vessels had before the war. This is owing, in a great measure, to the increasing use of foreign iron steamships, which have driven nearly all our merchant sailing-vessels from the sea, and with which we cannot successfully compete until our own home industries are stimulated in the same direction. It would seem that our actual loss of \$572,174,064 within the ten years, as shown by the foregoing calculation, is sufficient admonition to secure this.

The fiscal year 1878, just closed, shows a further decrease in the rate of our participation in the profits of this carrying-trade from the 29.9 per cent. average to 26.3 per cent. The freightage earnings for that year were \$95,200,009, and the passage earnings \$21,918,141, making a total of \$117,118,150. In all this the participation of American ships was only \$26,498,811, while that of foreign ships was \$90,719,339.

These are important facts, and cannot fail to arrest the attention of Congress and the country. They show that, at the ratios stated, our farmers, planters, manufacturers, and all others engaged in our numerous industries will, if this condition of things remains unchanged, soon be at the mercy of foreign ship-owners, who will possess the power, because of the absence of competition, to put up their ocean freights to ruinous prices, and thus impose upon our people even heavier and more oppressive burdens than they have hitherto borne. And the fact should not be overlooked that the payment of these immense sums for freights have operated as a drain upon our precious metals. Since the beginning of the war they could not have been paid in legal-tender or national-bank currency, in consequence of the difference in value between it and coin, and consequently, within the ten years from 1867 to 1877, \$572,174,064 and during the last fiscal year \$90,719,339 in gold, have been taken out of the United States because our mercantile marine has been so reduced that we have not had merchant-vessels enough to retain it by conducting our own carrying trade. It needs no argument to prove that our vari-

ous industries, connected directly and indirectly with commerce, require from the government a greater degree of parental care than this.

We have only to notice the total amount of shipping that entered the United States and cleared thence during the last fiscal year to see the disadvantages under which we labor.

The total number of vessels that entered as foreign was 30,796, representing 14,463,804 tons. Of this number, 15,330 were British vessels, representing 7,732,870 tons, and 10,594 were American vessels, representing 3,642,017 tons. The total number of clearances of vessels as foreign was 31,364, representing 14,807,531 tons. Of this number, 15,351 were British vessels, representing 8,282,348 tons, and 10,872 were American, representing 3,872,203 tons; while French vessels represented 221,362 tons, and those of all other countries 2,431,618 tons. Of the total tonnage entered, 25.1 per cent. was American, 53.4 per cent. British, and 74.9 per cent. was foreign. Of the total tonnage cleared foreign, 26.1 per cent. was American, 55.9 per cent. was British, and 73.9 was foreign.

The total tonnage engaged in the direct trade with Great Britain alone was: Entered, 4,929,834 tons; cleared, 5,891,527 tons; total, 10,821,361 tons. Of this total, 999,277 tons, or 9.21 per cent., was American, and 7,192,089 tons, or 66.46 per cent., was British.

We cannot afford to continue our dependence upon foreign nations for the transportation of our surplus products to the markets of the world. The benefits and profits of our own carrying trade should be enjoyed by our own people, and they cannot be further deprived of them without violating the principles of correct practical economy. Every dollar paid for freights to vessels built and owned abroad is so much coin withdrawn from our own domestic use and added to the wealth of other countries. And when ocean freights are increased, as they have been, beyond their actual value, in consequence of the absence of competition, this burden upon our industry becomes proportionately greater. Only a few years ago a combination of English steamship companies secured almost a complete monopoly of our grain-carrying trade by chartering all the ships available for that purpose, which resulted in an advance of freights upon grain of about 17 cents per bushel, so that the increase alone amounted in the aggregate to about \$8,000,000 annually, which was a clear loss to the wheat producers of this country. This large sum would have been saved to us if our own merchant-vessels had not been driven from the sea. The total loss by these means in the shipment of wheat, corn, flour, and cotton was about \$18,000,000 annually. And if to this be added the like proportion of loss upon the freights of the other numerous articles which made up the aggregate of our commerce, our annual loss in this excess alone was almost beyond computation.

The effect of competition upon the price of ocean freights is seen at the present time by a comparison of the amounts paid for shipments of wheat from San Francisco and New York to Europe. The large product

of the late harvest in California has attracted so many freighting vessels to the Pacific that prices are greatly reduced, while, in consequence of the diminished number engaged in the Atlantic trade, the old rates from New York to Europe are maintained, or, if changed, are somewhat increased on account of the absence of competition. And the result is that the California wheat-growers get their grain to a European market at only a small fraction more for transportation than those in the Atlantic States, although they have five or six thousand miles more of ocean navigation.

If it is to become a part of our settled policy that our commercial marine shall remain in this condition of inferiority upon the ocean, and this drain upon our wealth is to continue, we shall be left to decide the future of our Navy with reference only to the possibility of war with foreign powers and to the means of our national defense by proper protection to our coasts and harbors. In this event, our industrial interests must be left to suffer still further injury. Our iron, coal, and timber will decrease in value. The enormous freights we now pay will continue to press upon the producers of our surplus exports. Our merchant-vessels will, in the end, be entirely driven from the sea. And such unjust and ruinous limitation will then be put upon the enterprise of our people that their inventive genius will be restrained and their labor left without just reward. If all this is to be accomplished, the policy which produces it must be based upon the idea that the Navy bears no relation whatever to our commerce, and that the latter can reach every part of the world and encounter all the rivalries and vicissitudes of trade without any protection from it.

If, on the other hand, the government shall adopt such measures as shall put the country in a position to reap the full benefits of its commercial enterprise and secure the profits of our own carrying trade, which properly belong to us, by means of such fostering care as the national government alone has power to give, then our Navy should have such strength and character given to it that it will be able to furnish protection to our commerce wheresoever it may be needed.

Our present Navy is or can be made, without any other than the current annual appropriations, according to the expenditures of the last and the estimates for the present and next fiscal year, amply sufficient to protect our commerce in the present stage of its development. But as our surplus productions are annually increasing, and must be transported to foreign markets or become a total loss in our own hands, the question whether or no the Navy shall be improved so as to provide for this state of anticipated development must either now or at some time in the near future be decided by Congress. Although it cannot be properly considered without reference to the condition of the Treasury and its ability to supply additional appropriations, yet it becomes an important factor in deciding it to remember that if even the \$90,000,000 paid for freights during the last fiscal year to vessels sailing under for-

eign flags had been retained at home and allowed to become part of our national wealth, our ability to meet and overcome the embarrassments of trade would have been proportionately increased. This sum, if saved and judiciously expended, would alone be sufficient to make our mercantile marine equal to that of Great Britain and our Navy superior to any in the world. By mistaken and injurious policy, therefore, we have suffered the legitimate fruits of our commerce to be enjoyed by others, and an amount of money to be withdrawn from us and carried abroad in a single year sufficient to accomplish both these results. Whether we consider the present condition of the nations or our own prospective greatness as a people, it is necessary that this policy shall be changed at the earliest possible moment when the financial condition of the country will allow it to be done.

PAY OF THE NAVY.

The difficulties attending a precise adjustment of the pay of the Navy appropriations are of long standing, and some of them seem almost insurmountable. It is believed that more accurate results have been reached during the last year than ever before, but it will require time to give the new system of accounts, authorized by the act of the last session of Congress, a fair trial. In all that is said upon this subject, it should be borne in mind that the methods of accounting heretofore prevailing have had the sanction of long usage, and must, necessarily, have more or less influence upon the results attempted to be reached each year.

The discipline of the Navy necessary to restrain dissipation and desertion among seamen requires that a portion of their monthly pay shall be retained until the end of a cruise or enlistment, often of three years' duration. This standing custom is admitted, on all hands, to be necessary, as the money consideration is the chief hold that the government has upon the average sailor. Thus, money earned in one year and chargeable to that year's appropriation, may not be paid for one, two, or even three years after it becomes due.

Again, the exigencies of the service allow disbursing officers abroad to draw upon the Navy agents in London, because that currency is readily acceptable in all parts of the world. Bills of exchange are drawn at thirty, sixty, and ninety days, or at sight, and as the paper is merchantable after being negotiated by the first holder, it is often held and used by banking-houses or merchants as a means of safe exchange, so that bills drawn at a distant point at ninety days, during the last three months of a fiscal year, may not reach their destination in London until the third and possibly the fourth month of the following fiscal year, and would not be reported at the Treasury until the receipt and settlement of the agent's accounts for the second quarter of that fiscal year. This would bring the charge upon the books of the Treasury against the appropriation for the first year referred to nearly a year after the bill was

drawn. This is an extreme case, but it is given to show how the appropriations for a series of years are interlocked, and also in support of the demonstration that the complications of this fund are not always entirely settled until the year for which the money was appropriated has long passed. A settlement of a year's accounts for pay can never be absolutely determined, because claims for differences and arrears of pay are being continually presented and charges against back years are always arising.

Again, the suspensions made in settlements for lack of form or want of authority often remain a long time, because the disbursing officer does not immediately have the opportunity of correcting the informality; and in case of actual disallowance, the money may be refunded only in installments extending through several years. When the loss is great and suit follows, there may be a loss to a year's stipend through failure of the suit or compromise, which may not be shown for a long time.

Longevity pay, which is an increasing liability yearly, makes a further demand upon this fund. And these little sources of charges upon the appropriations for pay, accumulating all the time, help to make absolute yearly adjustments impracticable. They must always be met and paid from the balance on hand, for the reason that Congress has already fixed the pay by law, which cannot be departed from. And after a number of years have passed it is impracticable, if not impossible, to go back and get at these minor differences for explanation. Small in amount in individual cases, in ten years they assume large proportions and aggregate a large sum of money.

From these general explanations and this statement of existing facts it is easy to turn to a consideration of figures.

Heretofore the appropriations for pay of the Navy have been based upon estimates of the total earnings of the officers and men arising during the year, and the law requires that the earnings of a given particular year shall be paid only from the money appropriated for that year. This requires that money earned during a defined year, but for any reason not paid, shall be kept separate in the accounts of disbursing officers and on the books of the department, and be carried on from quarter to quarter as a distinct liability for that particular year. The amount of money due and to be appropriated must, therefore, be determined by calculation of the earnings on the pay-rolls, and the amount "remaining unpaid" must form a separate thread in the dealings of subsequent "total credits." The difficulty of a precisely accurate statement is at once appreciated, when the preceding complications of settlements are taken into consideration.

In the summary for the year 1877-'78, the last fiscal year, it is found that there was remaining due officers and men on July 1, 1878, the sum of \$684,080.94, and this may be taken as the average running liability of the government for payments to be met at future indefinite periods; but

in order to keep the account strictly correct, the exact amount due each officer and man should be accurately stated, and the balance should be held to pay these persons only. As, however, any legitimate claim may be paid for an amount due on account of misconstruction of law or short payment of any kind not estimated for nor forming a part of the balance on hand at that date, each payment of any such claim depletes the remaining part of the appropriation and makes an actual deficiency, because every person owning a share of the balance held could not then receive his part if payment was afterward attempted to be made in full to all concerned. This condition of payments from balances has always been a hidden leech upon the pay of the Navy fund.

A fair settlement is now being made with the fiscal year of 1877-'78. The account shows economy and care, and demonstrates that at the end of the year no deficiency existed. But, at the same time, the actual final liability of that year cannot be arrived at precisely until every class and individual claim has been satisfied and every suspension removed. The legislation for the current year was wise in the purpose to have "Pay of the Navy" stand upon its own bottom, to have each grade of officers provided for minutely and by itself, and to have each class of expenditures distinctly appropriated for, in order to reach a definite settlement and have a full allowance of pay to every officer and man in the service.

But the complications of settlements, under the new law, have been made much greater than they were before, and the prospect of closing the cash accounts of the multitude of appropriations has been removed to a more distant day than by former methods under the old law.

To cite a case in illustration: The appropriation "Pay of lieutenants" cannot be closed until the accounts of all paymasters are received and settled finally, without disallowance or suspension, and all claims of pay during the given year have been presented. Every lieutenant must have received every cent due him for ordinary pay, longevity pay, and, in fact, for all the law allows. If the complement of lieutenants has been full, and more of them have been on sea duty than was anticipated and estimated for, and what is known as "Pay miscellaneous" only covers its direct liabilities, then "Pay of lieutenants" must be deficient, yet it cannot be so declared for a long time. And the complications may be additionally increased by the fact, which might frequently occur, that, in the mean time, every lieutenant may have received all he earned, some other appropriation bearing the burden, which could not be removed until the accounting officers of the Treasury ascertained where it rested and provided the necessary transfers.

The book-keeping of these accounts is not impossible—it is, in fact, very simple; but all the debits and credits are never at hand at the proper time for the yearly adjustments. Hence a final trial balance-sheet for any given year cannot be obtained for the settlements of that year. And if these difficulties are attendant upon the final settlements of the accounts of lieutenants alone under the new system inaugurated

by the act making appropriations for the present fiscal year, it is easy to see how they will be increased when applied to the other seventy-two heads of appropriations specified in that act.

The only practicable mode of obviating the difficulty is to base the estimates and appropriations upon the amount of money actually required to meet the cash demands of the year involved, as has been done for the present year; that is, to appropriate a sufficient sum to pay currently the annual allowance without reference to the year it is earned. The officers are paid from month to month what the pay-rolls show to be due them. They cannot be paid more, because their pay is established by law. In cases of claims for past differences and arrears of pay, the course of payment is provided for by law. The whole plan secures the incidental advantage of having a current balance in the Treasury for use in "General Account."

By this method an accurate statement can be arrived at every year between the expenditures by the rolls and the cash appropriation accounts. The expenditures by the rolls and by vouchers, being the amounts actually paid in money, and not the total earnings, must correspond with the amounts drawn by requisitions. Suspensions, disallowances, and balances due from year to year will work out their own adjustment. They will not interfere with or complicate the yearly calculations and appropriation settlements. An exhibit of expenditures now required by law will afford the Secretary of the Navy and Congress all the information needed for intelligent action in reference to estimates, appropriations, and legislation. If it should be objected that the exact amount of money to be appropriated for a year cannot be ascertained, the objection would be met and overcome by giving a margin under "pay miscellaneous," similar to the excess for pay this year—say the sum of \$300,000—with the requirement that the balance on hand at the close of the fiscal year should revert to the Treasury.

SMALL STORES.

It is deemed appropriate to consider separately the subject of "small stores" for the naval service, although it has been directly connected with and in substance an actual factor of the appropriation pay of the Navy. There are manifest reasons why the account should be changed, and this be made a fund or appropriation by itself. Its association with pay of the Navy seems to have been accidental, and it has served to embarrass that appropriation by contributing to its deficiencies, without being of the slightest advantage to the appropriation or the mode of distributing stores as a matter of business. Under the act of Congress for the government of the Navy, approved March 2, 1799, it is provided that "the men shall, at their request, be furnished with slops that are necessary by order of the captain, and the amount delivered to each man shall be regularly returned by the purser so that the same may be stopped out of his pay." Slops at that date meant clothing, tobacco, and all personal wants now embraced in clothing and small stores.

An act approved August 26, 1842, contains this provision :

That all purchases of clothing, groceries, stores, and supplies of every description for the use of the Navy, as well for vessels in commission as for yards and stations, shall be made with and out of the public moneys appropriated for the support of the Navy, under such directions and regulations as may be made by the executive for that purpose ; and it shall not be lawful for pursers or other officers or persons holding commission or employment in the naval service to procure stores or any other articles or supplies for and dispose thereof to the officers, or to the crew during the period of their enlistment, on or for their own account or benefit ; nor shall any profit or percentage upon stores or supplies be charged to or received from persons in the naval service other than those which are hereinafter prescribed.

SEC. 2. That it shall be the duty of the executive to provide such rules and regulations for the purchase, preservation, and disposition of all articles, stores, and supplies for persons in the Navy as may be necessary for the safe and economical administration of that branch of the public service.

An act of March 3, 1847, provided—

That from and after the passage of this act all moneys derived from the sale of all stores and other articles belonging to the Navy shall revert to that appropriation from which such stores and other articles were originally purchased, and the Secretary of the Treasury is hereby authorized and directed to refund to the appropriation for "clothing for the Navy" the proceeds of all sales of condemned Navy clothing which have been paid into the Treasury of the United States, &c.

Clothing is here separated from the general account of slops, probably because it was then found that it was not self-supporting, and it has since remained a separate appropriation or fund. From time to time, since March 3, 1843, appropriations have been made to replace losses of all kinds, which must inevitably and continually take place in one way or another. The net expenditure or absolute cost of clothing to restore the depleted stock, from March 3, 1843, to June 30, 1876, is \$3,209,029.93.

Small stores, as the name indicates, was the minor part of slops, and attention has never been directed to it, because the losses by issue and survey over condemned goods were light in comparison with the losses on clothing, and the margin of balance in pay of the Navy was heretofore abundant to carry the deficiencies produced by these losses. But this always served to reduce the cash balance on hand. Issues have been kept up as at first prescribed. A part of the appropriation for pay of the Navy has since been used to purchase small stores, upon the theory that the money would be returned to the proper place from each man, being "stopped out of his pay and regularly returned by the purser."

At this date, however, all losses and deficiencies to appropriations are carefully guarded against and watched. Estimates, appropriations, and expenditures are rigidly scrutinized, in order to keep within the limits of law. And with this object in view, as well as to avoid all complications of accounts, especially with that of pay of the Navy, it is recommended that "small stores" be made a fixed and separate fund as well as "clothing." The process of purchase and distribution of small stores allows pay of the Navy to be used to buy and place stores in hand.

Stores go from the inspector to shipboard, and are issued according to the wants of the men, and the value of tobacco, soap, thread, &c., received by the men, is checked against their pay; or, in other words, it is paid out as money.

That is all well enough so far, but small stores are bought and placed on board ship at a certain money valuation, and it is meant that they shall be converted into money, and that the appropriation paying for the stores shall be fully reimbursed. Unfortunately, this is not the case. The sum of \$1,000 is expended for small stores, representing \$1,000 in money for the pay of the men. Nearly every paymaster meets with more or less of loss on issues, by natural shrinkage in weight, or by the waste of mildew, or other destructive elements. When the \$1,000 comes to be paid out in stores it is found that, say, \$100 in value is waste and condemned stores. Only \$900 are paid to the men in stores, and \$100 are lost and thrown overboard. To replenish the stores for further issue \$1,000 in money is again taken and paid. The small-stores account does not suffer, because the full value of \$1,000 is returned, but the appropriation providing the money is \$100 out—that much short.

Again, percentage is allowed disbursing-officers for ordinary losses on issue in dealing out small quantities, but Congress has never undertaken to provide that a sum equal to the loss should be appropriated to the fund or appropriation sustaining the money loss. Packages of stores lost entirely, the value of which is never recovered, are not again represented in the appropriation account. The loss forms a deficiency, which is neither tangible nor defined. A part of the former deficiency in pay of the Navy was undoubtedly caused by such losses, which have never come to light so far as the appropriation is concerned. Therefore, to relieve the standard appropriations of such uncertain charges, and to enable the department and accounting officers to make a definite settlement with "small stores," the money hereafter received for the issue and sale of these stores should be covered into the Treasury, under the proper head of "small stores," and expenditures to replenish the stock should be made from that fund, and no longer from the regular appropriations for pay of the Navy or any other than the specific fund designated for that purpose.

NAVAL ACADEMY.

The attention of Congress is specially invited to the report of the Board of Visitors to the Naval Academy, wherein it is shown that this admirable institution continues to entitle itself to the public favor. The system of education is complete in all its departments, and as the means of fitting the cadets for official position in the Navy, cannot be too highly appreciated. In all the departments of study the proficiency of the cadets is in the highest degree satisfactory. In order, however, to assure more efficiency in that of seamanship, navigation, and gunnery, it is deemed expedient to make the exercises somewhat more practical, by

adding to the military drills on shore evolutions upon the water similar to those practiced upon vessels at sea. It is believed that by this means cadet-midshipmen will be better prepared to profit by their practice-cruise, and that, when they reach the grade of masters at the end of two years after graduation, they will be more competent to discharge their duties on board men-of-war at sea. These duties involve both theoretical and practical knowledge of seamanship, and upon the manner and efficiency of their discharge the safety of both vessels and crews may frequently depend.

Steps have been taken to inaugurate this method of discipline and training, and the Department expects to be able, with the means at its control and without any special appropriation for that purpose, to perfect it within a reasonable time. It will require one or two sailing-vessels and several steam-launches. One of the latter has already been supplied, and when others are put in readiness, these vessels will furnish the means of affording instruction to cadet-engineers in the practical duties of their profession, and the cadets generally will be exercised in steam-tactics, of which they have hitherto been deprived by the absence of these facilities.

It is proper to be said that much of the success of this institution is owing to the indefatigable exertions and eminent ability of the distinguished naval officers who have held the position of Superintendent, and to the high scientific and professional attainments of the academic board. The rare executive ability of the late Superintendent is especially worthy of notice; but inasmuch as the necessities of the service have required that he should be assigned to a broader field of official duty, as the commander-in-chief of the Pacific squadron, the department congratulates itself that it has been enabled to supply his place by an officer equally competent and meritorious; one who, by professional training, long experience, and untiring devotion to duty, has displayed the highest qualifications for the position. From his labors and those of the distinguished gentlemen who compose the present academic board there may be reasonably expected to flow the most decided advantages in the future of this national institution. Devoted as they are to the work intrusted to them, and laboring to omit nothing necessary to the personal comfort and professional culture of the cadets under their charge, the institution cannot fail, under their management, to commend itself still further to Congress and the country as worthy in the highest degree of such protection and care as shall be necessary to give it additional efficiency in supplying the Navy with its future officers.

It is desirable in the highest degree that special care should be taken in the professional training and education of naval constructors. Well educated and competent constructors are absolutely necessary for the Navy. They are not only required to devise plans of vessels, but to lay down their lines, calculate their tonnage and displacement, estimate their speed, adjust their capacity for carrying batteries, and, in fact, to

ascertain beforehand, with absolute accuracy, what the vessel when finished will be capable of doing. The details necessary in all this are exceedingly minute, and the scientific attainments required are of the highest character. The performance of these duties cannot safely be intrusted to incompetent men, and therefore all the leading governments have given special attention to the education of the constructors of their ships of war.

If we are to meet these governments upon terms of equality upon the ocean, either in peace or war, we should be prepared to do so with ships equal to theirs both in sailing and fighting qualities. There is but one way of doing this, and that is by providing a corps of competent naval constructors. The law, as it now stands, makes no provision for the education of such a corps, and I feel it to be my duty to renew the recommendation in my last annual report on this subject. The provisions of the statute having reference to engineers, with a few necessary modifications, if applied to constructors, would accomplish the desired object, and they could be educated at the Academy, like cadet-engineers, with special reference to the details of their professional duty. Every argument in favor of building model engines by cadets applies with equal force to the construction of model ships.

NAVY-YARDS.

The limited means placed at the disposal of the department for the preservation and repair of the several navy-yards have been disposed of during the year with commendable discretion on the part of the officers having them in charge. Rigid economy has been practiced, and no other work has been done than what was found necessary to prevent decay and waste. Like appropriations for the next fiscal year will be similarly applied, if it is the pleasure of Congress that the yards shall be no further improved; and the estimates have been made with this view; although the department feels constrained to say that this will leave many of them without improvements considered absolutely necessary and greatly expose the public property to damage.

The nature of the expenditures will appear from the following detailed statement, and a more satisfactory explanation of them will be found in the accompanying report of the Bureau of Yards and Docks.

KITTERY YARD.—Roofs and foundations of the buildings have been repaired, and necessary improvements have been made upon bridges, wharves, and landing-stages. The hospital building, which was previously in very bad condition, has been thoroughly repaired and renovated, which greatly conduce to the health and comfort of the patients. The grading of the grounds has been continued and drains laid to tide-water, so that the hospital is in better condition than it has ever been. Valuable and necessary improvements have been made to the dry-dock, by refitting the pumps and removing decayed timbers and planks. The

work only which was the most urgent has been done, and much that could have been profitably done, if the appropriation had been sufficient, has been omitted. The whole amount expended during the year under this branch of the service was \$54,630.83.

While this yard is in good condition and is one of the best in the country on account of its admirable location and the skill of its mechanics, yet there are several frame buildings in a dilapidated condition and subject to be destroyed by fire, for which more substantial ones should be substituted. Besides this, a flow of water has been secured which, with proper appliances, may be conducted throughout the yard, so that any fire that might occur could be readily extinguished. But these improvements cannot be made without increased appropriations.

CHARLESTOWN YARD.—The general repairs at this yard have been of a miscellaneous character, such as repairs to buildings, roads, walks, drains, sewers, and water and gas pipes. It is in admirable condition and the management of those having it in charge is satisfactory. It has every facility for the construction and repair of vessels, and its ropewalk is believed to be unsurpassed in the world. The total expenditure amounted to \$80,927.17.

NEW LONDON YARD.—The sum expended at this yard has been small, in consequence of the limited improvements heretofore made, and amounts only to \$6,495.02, which has been used for materials, repair of officers' quarters, and labor.

This yard has been left in an unfinished condition, never having been fitted up for the construction or repair of vessels, or for any branch of manufactures necessary to the naval service. Whether this shall or shall not be done in the future depends upon the discretion of Congress. Its position is a highly advantageous one. No expensive grading of the ground will be necessary, and granite for walls can be readily obtained in the immediate neighborhood. The water is of ample depth, and the harbor has a fine entrance from the ocean. It is navigable at all seasons. As the considerations which enter into the question whether or no it shall be further improved and made fit for the construction and repair of vessels must be decided by Congress, the department, until this is done, can only continue to apply the limited appropriations as heretofore, for the protection and preservation of the public property.

BROOKLYN YARD.—This yard has been kept in its present good condition by the utmost care in management, the economical improvement of streets, roads, and wharves, and by the necessary repairs of buildings. The work, like that at Charlestown, has been of a general and miscellaneous character, suitable to the condition of the yard. The whole sum expended during the year is \$119,501.90. In order, however, to make such other improvements at this yard as are demanded by its position on the harbor of New York, much of the work now in progress will have to be continued.

LEAGUE ISLAND YARD.—Very important and material work has been

done at this yard, and but for a recent freshet its general condition would have been greatly improved. The work has necessarily been of a varied character, as the yard has never yet been put in as complete a state of repair as some of those that have been longer established. The total expenditure was \$219,445.76, upon the following objects: Saw-mill, guard-house, watch-house, causeway and bridge, dredging and filling in, iron-plating shop, steam-engineering storehouse, docking apparatus, and mold-loft, blacksmith shop and foundery, extension of wharf and grading, repairs of buildings, roads, walks, and wharves. All the work has been well done.

On the 23d of last month very considerable damage was done to this yard by a severe and most destructive gale of wind and rain. The dike surrounding the yard, and which was designed to protect it from the tide-water, was broken through at thirty-five places, and to the width of 1.396 feet. All that part not filled in was submerged to the depth of about 7 feet. A number of buildings were injured, and a large ship-house was entirely destroyed. The work of repairing the dike was begun as soon as the water had sufficiently subsided, and has progressed with all possible dispatch. Repairs of a temporary nature will cost about \$15,000, but if they are so made as to furnish future and permanent protection to the island it is estimated that they will cost \$50,000.

The condition of this yard should command the serious attention of Congress. Its position in relation to the iron and coal fields of Pennsylvania, and its extensive deep-water front on the Delaware River, combine to render it second to no yard in the country. If left in its present unfinished condition, the property already accumulated there will rapidly deteriorate in value, and the advantages contemplated by its location will be in danger of ultimate loss.

WASHINGTON CITY YARD.—The repairs in this yard have not been as extensive as were required, but have been of a valuable character, confined to buildings, streets, ship-house, and wharves. The sum of \$74,529.20 has been expended, and all economically applied, under the most careful and circumspect management. When the condition of the Treasury will allow, the grounds this yard should be somewhat extended, when it can be made equal to any other in the country for building and repairing purposes as well as for manufacturing. A rolling-mill has been constructed at a cost of only \$9,953.23, which has the capacity to roll all the iron that may be needed for naval purposes.

GOSPORT YARD.—The amount expended at this yard has been small compared with its value and importance, being only \$76,678.01. A much larger sum could have been advantageously used, in consequence of the absolute necessity for timber-sheds. Without these the large amount of timber collected there is exposed to the weather and is rapidly decaying. The annual loss by this means is almost enough to erect sufficient sheds, but the department is unable to do this without more liberal appropriations. Such appropriations would undoubtedly be good economy.

PENSACOLA YARD.—The amount expended during the year for an iron floating-dock for this yard, authorized by Congress, was \$161,788, which has been paid out of the specific appropriation for that purpose. This dock has been built at Chester, Pa., and is now ready to be transported to the yard. Inasmuch, however, as there would be great danger of loss, owing to its great bulk and peculiar structure, if the attempt to transport were made without extreme caution both as regards weather and fitness of means for the purpose, it has been delayed, but will be done at as early a period as possible. When it reaches there it will be a very necessary and important improvement in the condition of this yard, as it will furnish the means of docking ships serving in the Gulf of Mexico. It will be the only dock upon the Gulf coast, and the only one south of the Gosport navy-yard.

It is an important question to decide whether the improvements of this yard shall be continued beyond what can now be done with the means at the control of the department. It is an important point on account of its location, and undoubtedly possesses great advantages because of its contiguity to the live-oak, coal, and iron regions of the South, both for building and repairing vessels. In the event of hostile naval operations in the Gulf it would afford a safe place of rendezvous for our ships, where they could be repaired without having to be taken to the more northern yards. These are questions, however, exclusively for the consideration of Congress.

MARE ISLAND YARD.—The whole amount expended at this yard during the year was \$102,658.85, of which \$3,448 was applied to yard improvements. So far as these were concerned, the work has been done in a very satisfactory manner, and the yard is in as good condition as could be expected under existing circumstances.

This being the only yard upon the Pacific coast, the necessity for putting it in the best possible condition for the construction and repair of ships is considered imperative. It must always be the point to which all our vessels in the Pacific and the Chinese seas will be carried for repairs, and these cannot be satisfactorily made unless the yard is put in condition and kept so. At the last session of Congress an appropriation of \$75,000 was made for the continuance of the dry-dock, and this sum has been judiciously applied for that purpose. The work thus far has been done in a most satisfactory manner, and the necessity for an additional appropriation to complete the dock is absolute. If it is delayed there is danger that the sea-wall may be broken by storms, and, in this event, irreparable injury must inevitably be done.

DOUBLE-TURRETED MONITORS.

Congress, by an act approved June 23, 1874, authorized the expenditure of \$849,045 for completing the repairs of such double-turreted monitors as the Secretary of the Navy should select, having in view more ample protection to our harbors and leading commercial cities. The object demanded immediate attention.

The duty imposed upon the department was imperative, in so far as the construction of the vessels was concerned, but the plans upon which they were to be rebuilt was left to its discretion. And, consequently, the incipient step was to determine these, with reference to their fitness for naval warfare, and in view of the progress made at that time in naval architecture. Such monitors as we then had were considered equal to any of their class in the world, but as they were all single-turreted and carried but two guns each, it was essential that the additional displacement required by these new structures should be decided in order to secure to them the necessary effectiveness of war-vessels, and, at the same time, the capacity to carry with safety the additional weight occasioned by double turrets of increased thickness of iron and four guns.

The leading nations, especially Great Britain and Italy, have experienced difficulties in constructing their great armored ships, and have expended enormous sums of money in various experiments, many of which have proved unsatisfactory. When the plans of the five new monitors, the *Amphitrite*, *Miantonomoh*, *Puritan*, *Monadnock*, and *Terror*, were decided on, none of the experiments made by these nations had promised more favorable results than might reasonably have been expected from ours. And it may well be questioned whether their subsequent experiments have done so, except in so far as their large guns and improved projectiles have shown the capacity to pierce through heavier iron plating than could then have been done. They have established the fact, however, that a steel projectile, weighing 80 pounds, can be driven through iron armor of 10 inches in thickness, with 33 pounds of powder; and armor of 11 inches with an increase of 3 pounds of powder, fired from a gun weighing 35 tons. With the gun increased to 80 tons and the powder to 100 pounds, 20 inches may be penetrated; and it is to provide for this contingency that these governments are now constructing their large armored vessels. They have, consequently, increased the thickness of their armor from 10, 12, and 14 to 24 inches, and the displacement, as in the case of the English ship *Inflexible*, to 11,407 tons. Some idea of the cost of such vessels of war may be formed when it is stated that one of the 80-ton guns of the *Inflexible* was estimated to cost \$72,000, which would make the cost of the four \$288,000. Ten shots from each of these guns will cost about \$6,320 for powder and projectiles. But as the department had none of these experiments before it to guide its action, it had the difficult task to perform of deciding upon the plans of these monitors with the lights before it. And it may be confidently asserted that its decision, when reached, had about it as few if not fewer defects than have attended any like decision in Europe.

It should be observed that, in these European experiments, both guns and targets have been stationary, the results being shown only when the projectile strikes the object aimed at. The process of firing by one ship at another when both are in motion is a different thing. In this case the gun will lose none of its power, but the same accuracy of firing

cannot be obtained. And, consequently, it is yet doubtful whether these large expenditures are justifiable, when it is considered that where one projectile will strike the narrow surface exposed upon a monitor, a large number will fail to do so. Yet the department has, at the same time, considered it to be its duty to profit by them as far as possible, in order to make our means of naval defense and attack equal to those of any other nation.

The turrets already constructed for the *Miantonomoh* are 10½ inches of laminated iron plating. In addition, it is proposed to band them with an iron plating 5 inches in thickness, so that, when completed, their entire thickness will be 15½ inches. This, however, will not possess the resisting power of that number of inches of solid iron—that of laminated compared with solid plating being about sixty-six one-hundredths to one inch. These turrets, therefore, will have the resisting power of 10½ inches of solid iron. It is believed that, for present purposes, this will be ample. The armor of this ship will be 7 inches of solid iron, so that its resisting power will be 3½ inches less than that of the turrets. It is designed to have her ready for a trial trip at sea during the present winter months, so that her qualities may be tested before the turrets are placed on deck. It is believed, also, that the money already appropriated will be sufficient for her completion, which will be done without unnecessary delay. In the mean time the experiments now in progress in Europe will be carefully noted, so that their results may be made available as far as possible in the completion of the *Amphitrite*, *Puritan*, *Monadnock*, and *Terror*. Of these vessels the *Puritan* will be far in advance of the others in her means of defense. She will have 11 inches of solid iron armor and 15 inches of solid iron turrets. When finished she will be one of the best monitors afloat, and probably superior to any war-vessel of her draught of water yet built. For the completion of these vessels additional appropriations must be made. When this is done and these five armored ships are finished according to the original intention of Congress, the Navy will possess 15 single-turreted monitors with two guns each, and five double-turreted with four guns each, making in all 50 guns. And with these floating fortifications added to our other effective naval force, we may confidently rely upon our ability to protect our harbors and large commercial cities against the most formidable fleets in the world.

It should be remarked, however, that in order to complete the power of the monitors for the defense of our harbors, it is necessary that rifled cannon should be substituted for the 15-inch smooth-bores they now carry, which are ineffective against armor of more than 6 inches in thickness. Rifled cannon of 10 inches, of about the same weight, would penetrate the side of any vessel likely to be employed on our coast. The attention of Congress is respectfully called to these facts, so that when an appropriation is made for completing these vessels, these considerations shall not be lost sight of.

TORPEDOES.

The torpedo has become absolutely essential to the effectiveness of any modern system of naval warfare. This terrible instrument has been carried to such perfection that a small shell filled with a few handfuls of composition will utterly destroy the largest ship in the world. When Fulton, in 1810, brought to the notice of the President and Congress the fact that he had, several years before, destroyed a brig of 200 tons by the explosion of a torpedo, the scientific world was incredulous; but the experience of the present verifies the value of his invention and the truth of his predictions. And now the great nations vie with each other in their efforts to add to the destructiveness of the torpedo for purposes both of attack and defense. Our discoveries thus far have equaled, if they have not surpassed, those of other countries, and our naval officers engaged at the torpedo station at Newport furnish almost daily evidence of their ingenuity and proficiency. The Ordnance Bureau has availed itself of every means at its command to facilitate the necessary experiments and inventions, and these, made at comparatively small cost, have already been so perfected as to promise increased improvement in the future.

The torpedo can be as easily exploded below the water as upon its surface, by either concussion or electricity; and by whichever of these modes it may be done, it is probably as effective for the defense of harbors and ships as it ever will be. What is desired is to make it more effective for attack, so as to destroy an enemy before he can approach too near. To a certain extent our torpedo-boat, the *Alarm*, can, with an increase of speed, be relied on for this; and she is, within a radius of 15 feet from her hull, a most formidable vessel of war. It would require but few of such ships to destroy an entire fleet of ordinary steam or sailing vessels. But even the *Alarm* leaves unaccomplished what is so much desired in naval warfare, that is, the means of sending out the torpedo to such a distance upon the water as to cut off an enemy entirely before he approaches too near. Our experiments have led to the belief that this may be done, with reasonable certainty and within a reasonable distance, by boats carrying torpedoes and steered by electricity, either from the shore or the deck of a ship. As these boats would have neither officers nor seamen on board, they might be captured and lost in the event of failure, but if successful the vessel with which they would come in contact, whether large or small, would be inevitably and immediately destroyed. Other experiments are in progress by which it is expected that a rocket-torpedo may be forced upon the water for a considerable distance, to be determined by the strength and quantity of the powder used, and exploded upon coming in contact with an enemy, dropping the torpedo under the water and firing it below the line of the vessel's armor. This, if accomplished, would be equally destructive. Yet another plan has almost if not entirely reached the

point of actual demonstration. This is by means of a steam-launch, possessing extraordinary speed, so arranged that the explosion of the torpedo may be made to take place while the launch is at full speed, so that two men, if they can escape the balls of an enemy, may pass entirely through a fleet and destroy every ship they succeed in reaching.

Captain Ericsson has constructed a partially submerged and armored vessel, intended for greater speed than any iron-clad, and capable of projecting a submarine shell with great velocity and accuracy to a distance of 300 or 400 yards, which is probably as far as any offensive torpedo is likely to be effective at sea. Some preliminary trials have been made by the inventor, and a board has been ordered by the department, at his request, for an official trial when it is ready for service. The same torpedo can be effectively employed from any vessel fitted with a tube above or below the water and the machinery for ejecting the torpedo.

If the practicability of all or any one of these experiments shall be established, our monitors and torpedo-boats would furnish the amplest protection to all our harbors against any possible enemy, no matter what the size or character of the attacking ships. And inasmuch as we have been the pioneers in this mode of naval warfare, and have produced most satisfactory results from our experiments thus far, the department cannot withhold the expression of the hope that Congress will deal liberally with this branch of the service.

TRAINING SYSTEM.

Too much importance cannot be attached to the system of educating boys for the purpose of manning ships of war with trained seamen. It is now in operation in every navy in Europe. In England it has been found inexpedient to rely upon the merchant marine for the supply of sailors on men-of-war, chiefly because they are not trained to handling guns and small-arms, especially those in modern use. Consequently the compulsory power to withdraw seamen from merchant-ships has been taken away, and the system of instructing boys upon training-ships substituted for it. By this means, in the opinion of the British admiralty, there has been supplied to the British navy a considerable number of the best seamen in the world, who are fully competent for all their duties when first entering upon a cruise at sea. The Crimean war found the British navy almost demoralized or at least very much crippled, for the want of men. The government was, therefore, forced to adopt this system, and the result has been that its navy of 30,000 men is now manned exclusively from its training-ships. During the Franco-Prussian war, when the French Government found its ships unavailable for active warfare upon the sea, it manned the batteries of Paris with its trained seamen-gunners, and they were found as effective in this duty as the regulars of the army. It will be seen from these examples that a government, by means of this system, will always have at its command a force equally effective ashore as afloat. Besides, it is a permanent force,

available for any class or kind of ships. These change with the progress of naval art, and frequently in this inventive age, when experiments are developing new results almost every day; but the men who govern their movements and work their guns remain always the same—are efficient in proportion to their military training. Nor ought we to lose sight of the fact that this system creates a sense of patriotism and veneration for the national flag, which can neither be obtained, nor ought to be expected, from heterogeneous crews, picked up in various seaports without regard to their antecedents or nationality.

Actuated by these and kindred considerations, the department, in April, 1875, issued a circular order directing that, under the Revised Statutes, sections 1418, 1419, 1420, boys between fifteen and eighteen years should be enlisted in the Navy, to serve until they were twenty-one years of age, and designated certain ships for training purposes. Boys have been received on board these ships, always deducting the number received from the actual force of men allowed for the Navy, until, at the present time, the Bureau of Equipment and Recruiting reports that 600 of them, after receiving one year's training, have already passed into the general naval service, where, from the uniform testimony of their commanding officers, they are now performing their duties manfully and well.

From our own experience, therefore, as well as the more mature experience of other nations, it is manifest that yet more important advantages may be expected to result from this training system, if persevered in.

I feel it my duty, consequently, to call attention to the recommendations upon this subject contained in my last annual report, and to invite for the system the protection of Congress. In order to perfect and place it upon a permanent basis it will require the enactment of a law authorizing the enlistment of 750 boys annually, at an expense not exceeding \$10,000 per annum, for the purpose of manning the Navy with an intelligent, thoroughly trained and educated class of American seamen, who will feel all the responsibilities and obligations of citizenship. It matters not where these boys are born, their training under the national flag will instill into their minds the duty of its protection against all possible foes.

In this connection I have also the honor to recommend that hereafter all warrant officers in the Navy be appointed from the most intelligent and deserving of these boys; and if, in addition to the introduction of these well educated and trained boys into the grade of warrant officers, recognized rank could be given, as in the English navy, that corps would soon recover from the disrepute into which it has somewhat fallen on account of the professional and physical incompetency of some of its members. And this would, besides, present to the boys a legitimate object of ambition, which would be constantly present in their minds to stimulate them.

Should Congress decide to authorize by legislation the perfection of this system, and thus place it upon a permanent basis, the department will exercise all necessary care in the selection of the boys and in distributing the enlistment through all parts of the country. By this means the Navy will not be left to represent, as it now does, in its *personnel*, only the narrow limits of the seaboard and almost every nationality, but will draw that important element of its organization, the "rank and file," from the vigorous and intrepid young men of the whole country. And it will thereby acquire a character of nationality which it will carry with it wheresoever our ships shall sail.

NAVAL OBSERVATORY.

An act, passed at the last session of Congress, authorized the appointment of a commission consisting of a rear-admiral of the Navy, a colonel of Engineers, and a citizen from civil life, to select a site, within the District of Columbia, for the Naval Observatory, with a view to its removal. They were required to make the selection with reference to healthfulness, clearness of atmosphere, convenience of access, and such other advantages as should be found expedient. The commission appointed for this purpose was composed of Rear-Admiral Daniel Ammen, United States Navy, Brevet Maj. Gen. John G. Barnard, United States Army, and Leonard Whitney, esq. The duty assigned them has been discharged and their report is now laid before you.

It is important that the Observatory shall be removed from the unhealthy position it now occupies with as little delay as possible. The situation is directly exposed to miasmatic influences in such a degree as to require the officers to procure other places of residence, especially during the summer months. This subjects to very great inconvenience those of them whose duties and investigations require almost the constant use of the telescope at night, which is absolutely necessary in their astronomical researches. The removal would facilitate their future investigations by relieving themselves and their families from the influences of an unhealthy atmosphere during the summer season, and could be more economically made now than at a future time when the present buildings will have become more deteriorated in value.

The eminent reputation acquired by the Observatory in the scientific world not only entitles it to be looked upon with pride by the American people, but commends it in the highest degree to the consideration of Congress. There is no kindred institution in the world surpassing it, either in the ability of its corps of professors or in the extent and value of their astronomical researches. Whether considered as a national contribution to one of the most important and interesting of the sciences, or as an auxiliary of the Navy and the commercial marine in rendering the navigation of the sea more safe, it deserves, on the part of Congress, the most liberal patronage.

MARINE CORPS.

This important arm of the naval service deserves the special consideration of Congress. Without the support it has always rendered when called on, the Navy would be deprived, in a great degree, of its strength and military efficiency. The law, as it now stands, authorizes the enlistment of a sufficient number of privates, but as this cannot be done without appropriations necessary for the purpose, it is recommended that whatsoever appropriations are made shall have reference to that object. The number is now so limited that it is exceedingly difficult to supply ships at sea, yards, and stations with the necessary number of men; and unless the department has power to do this the public service must suffer.

The attention of Congress is called to the report of the commandant of this corps. Its wants and necessities are therein set forth. Without specifying any of the points embraced in it, the department commends them to the attention of Congress. And inasmuch as the appropriations called for are so small, compared with the services rendered by the corps, it cannot refrain from expressing the hope that they may be well considered and liberally dealt with by Congress.

NAVAL PROPERTY.

During the eighty-two years, from 1794 to 1876, inclusive, there has been expended the aggregate sum of \$418,650,433.51, on account of Ordnance, Yards and Docks, Navigation, Construction and Repair, and Steam Engineering—that is, for tangible and perishable property. It has consisted and, so far as it now exists, yet consists of grounds, buildings, ships, guns, engines, boilers, docks, machinery, instruments, tools, &c. Some of it was obtained during the times of war, when prices were high. From 1812 to 1815, inclusive, the aggregate expenditures were about \$18,000,000 in excess of the average ordinary expenditures; and from 1861 to 1867, inclusive, this excess rose to about \$313,000,000. It would be impossible now to ascertain what proportion of these amounts is chargeable to the increase of prices occasioned by a state of war, but it is a reasonable estimate to assume that it was about an average of 50 per cent. This per cent. deducted from the total excess of \$331,000,000, being \$165,500,000, leaves \$165,500,000 as a fair estimate of the value of the property rendered necessary by war as compared with the average prices prevailing in times of peace. And this would leave \$252,150,433.51 as also a fair estimate of the total value of the tangible and perishable property which has been purchased, during the period of eighty-two years, for the Navy Department, including large sums for necessary experiments, &c., which cannot be estimated.

• Inventories of the present tangible property of the Navy, including grounds, buildings, ships, guns, engines, boilers, docks, machinery, instruments, tools, &c., have been taken under instructions from the depart-

ment. The approximate total value is \$118,295,832.50, as shown by a table which accompanies this report. This, deducted from the foregoing estimate of original cost, shows the decrease in value as compared with the total cost to be \$133,854,601. If this loss had been occasioned in the brief period of a year, or a few years, the amount would appear large. But it is to be remembered that it has been continuing through eighty-two years, and has been occasioned by use, decay, and other natural causes of deterioration, as well as, in a large degree, by the fact that when naval or any other public property has been sold at auction it has almost invariably produced less than the original cost. Including all these inevitable sources of diminution in value, however, the loss does not exceed a rate well accounted for by natural and other causes over which the department has had no control.

Although, of course, in such large expenditures there must sometimes have been extravagance and waste, it may be confidently asserted that the general average of loss and deterioration is not greater than ordinarily occurs in the management of other kinds of tangible property, whether used by the public or by private citizens. Some percentage of loss beyond this may have occurred from the want of the necessary appropriations for preservation and repair, with which the department is not justly chargeable. Nor is it chargeable for deterioration in value from natural causes. Ships, houses, &c., built of timber are subject to decay, as are iron and all kinds of machinery to deterioration, under the influence of laws beyond human control. They may, however, be preserved somewhat beyond the natural period of this decay and deterioration by extreme care, which, in the case of public property, can only be provided when the necessary appropriations are made for the purpose.

In regard, therefore, to the naval property now on hand, the department can only respectfully suggest that it is not within its power to prevent its decay and deterioration, and that it cannot provide for its improvement and preservation without the necessary appropriations for that purpose. With the faithful disbursement of whatsoever is given to it with this view it is justly chargeable. Beyond this it is not, and ought not to be.

R. W. THOMPSON,
Secretary of the Navy.

The PRESIDENT.

SUPPLEMENT.

BALANCES OF APPROPRIATIONS.

BALANCE JUNE 30, 1878.

Bureau of Yards and Docks, 1878:	
Maintenance of yards and docks	\$22, 116 64
Repairs and preservation at navy-yards	7, 687 56
Naval Asylum at Philadelphia	10, 881 64
Bureau of Equipment and Recruiting, 1878:	
Equipment of vessels	225, 331 20
Contingent, equipment and recruiting	13, 548 00
Bureau of Navigation, 1878:	
Nautical Almanac	5, 533 21
Hydrographic work	18, 245 81
Contingent, navigation	971 19
Bureau of Ordnance, 1878:	
Ordnance and ordnance-stores	17, 662 66
Torpedo corps	924 22
Bureau of Construction and Repair, 1878:	
Construction and repair	37, 883 73
Bureau of Steam Engineering, 1878:	
Steam machinery	28, 230 09
Bureau of Provisions and Clothing, 1878:	
Provisions, Navy	100, 541 66
Contingent, provisions and clothing	2, 195 27
Bureau of Medicine and Surgery, 1878:	
Surgeons' necessities	545 79
Repairs and improvements	8, 304 60
Contingent, medicine and surgery	688 83
	<hr/>
	501, 272 10

Total approximate value of property belonging to the United States Navy.

Portsmouth, N. H.	\$6, 634, 899 91
Boston, Mass.	18, 507, 495 52
New York, N. Y.	23, 757, 134 90
League Island, Pa.	3, 396, 014 36
Washington, D. C.	5, 394, 940 95
Norfolk, Va.	7, 847, 897 94
Pensacola, Fla.	2, 879, 587 80
Marine Island, Cal.	7, 181, 720 78
Newport, R. I.	328, 183 71
New London, Conn.	75, 371 00
Key West, Fla.	228, 986 85
Marine Barracks, Washington	172, 000 00
Marine Barracks, Portsmouth	104, 100 00
Naval Hospital and Marine Barracks, Norfolk	1, 009, 775 00
Naval Asylum, Philadelphia	976, 300 00
Naval Hospital, New York	775, 186 72
Naval Academy, Annapolis, Md.	1, 286, 490 26
Value of boilers and engines on ships	3, 218, 685 79
Value of ordnance stores on vessels in commission October 26, 1878	1, 372, 829 54
Cost of equipment outfits of vessels in commission July 1, 1878	2, 29, 000 00
Property under cognizance of Bureau of Navigation, Washington	844, 277 00
Value of hulls of ships belonging to United States Navy	29, 000, 000 00

Value of stores under cognizance of Bureau of Provisions and Clothing on vessels in commission and in storehouses and store-ships on foreign stations

\$26,045 59

Value of stores under cognizance of Bureau of Medicine and Surgery on vessels in commission and in Naval Dispensary at Washington

31,000 00

Naval Hospital and Bellevue Magazine, Washington

217,908 88

118,295,832 50

Appropriations and expenditures of the Navy Department for the years 1794 to 1876, inclusive.

Year of expenditure.	Amount of annual appropriation.	Expenditure by warrants.	Repayments.	Amount carried to the surplus fund.	Net expenditures.
1794	\$768,888 82	\$61,408 97			\$61,408 97
1795		410,562 03			410,562 03
1796	5,000 00	274,784 04			274,784 04
1797	487,000 00	383,912 95	\$1,281 06		382,631 89
1798	2,024,712 00	1,381,505 83	158 07		1,381,347 76
1799	3,813,789 89	2,848,081 84			2,848,081 84
1800	2,482,953 40	3,448,716 03			3,448,716 03
1801	3,042,352 95	2,526,670 42	415,246 42		2,111,424 00
1802	1,719 00	970,561 87	55,000 00		915,561 87
1803	1,144,797 46	1,215,230 53		\$671,279 71	1,215,230 53
1804	1,667,498 45	1,234,832 75			1,189,832 75
1805	1,550,000 00	1,507,500 00	45,000 00	184 94	1,507,500 00
1806	1,692,141 44	1,649,641 44		477,665 70	1,649,641 44
1807	2,429,564 47	1,722,064 47			1,722,064 47
1808	1,131,567 80	1,884,067 80			1,884,067 80
1809	2,916,902 50	2,428,633 80	875 00		2,427,758 80
1810	1,664,640 69	1,654,301 70	57 50		1,654,244 20
1811	1,870,274 05	1,970,263 34	4,696 95		1,965,566 39
1812	4,304,689 00	3,060,090 40	1,625 25	2,500 00	3,959,315 15
1813	9,510,788 55	6,448,100 10	1,500 00		6,446,600 10
1814	8,174,910 87	7,312,899 00	1,609 30	403,750 00	7,311,290 00
1815	5,258,686 25	8,660,000 25		110,486 75	8,660,000 25
1816	4,234,793 77	3,908,611 77	333 47	174,962 25	3,908,278 30
1817	3,814,598 40	3,314,598 49		90,500 02	3,314,598 49
1818	3,508,695 00	2,953,605 00			2,953,605 00
1819	3,427,306 95	3,847,640 42			3,847,640 42
1820	4,042,990 00	4,387,990 00			4,387,990 00
1821	2,709,243 06	3,319,243 06			3,319,243 06
1822	3,141,891 52	2,607,518 84	382,629 48	267,169 30	2,224,889 36
1823	2,822,484 62	2,748,523 87	246,497 54		2,502,026 33
1824	2,948,969 20	3,334,890 00	434,683 63		2,900,206 37
1825	3,667,706 31	3,338,819 65	291,708 18	159,780 54	3,047,111 47
1826	3,738,985 23	4,644,649 14	427,046 12	58,921 20	4,217,603 02
1827	3,709,490 35	4,519,811 45	260,012 43	11,220 97	4,250,799 02
1828	3,898,205 04	4,328,351 06	370,462 95	64,876 34	3,957,888 71
1829	3,845,008 13	4,041,879 78	600,516 55	26,638 78	3,441,363 23
1830	4,316,000 47	3,820,287 48	574,613 63	57,905 36	3,245,673 85
1831	3,406,643 29	4,306,864 80	311,047 90	26,269 70	3,994,916 90
1832	4,456,573 53	4,088,626 28	298,114 31	16,917 04	3,790,511 97
1833	3,867,872 01	4,111,386 33	211,846 58	19,477 54	3,899,539 75
1834	4,548,252 95	4,148,076 22	214,881 41	70,874 06	3,933,194 81
1835	4,966,734 13	4,044,616 19	205,973 82	12,394 79	3,838,642 37
1836	6,787,667 96	6,106,267 64	302,763 14	57,266 86	5,838,564 50
1837	7,465,057 00	7,236,950 18	396,873 50	98,814 03	6,840,076 68
1838	5,076,336 26	6,522,559 04	581,343 60	1,666,863 42	5,941,215 44
1839	5,888,030 96	6,669,660 39	477,794 39	213,330 34	6,191,876 00
1840	5,789,679 40	6,381,120 21	291,571 66	4,152 21	6,089,548 55
1841	7,418,086 64	6,496,001 65	618,872 41	6,681 80	5,877,329 24
1842	6,632,386 82	8,654,408 44	381,521 25	48 92	8,272,977 19
1843	3,641,300 97	4,283,841 27	584,657 17		3,699,184 10
1844	6,048,456 51	7,247,503 53	796,673 09	2,550 53	6,481,520 44
1845	5,858,080 27	6,914,667 38	751,601 75	450 00	6,153,065 63
1846	8,963,928 10	7,766,971 53	1,434,237 89	9,282 98	6,332,733 64
1847	7,591,784 61	10,709,650 56	1,926,477 88	2,846 94	7,783,172 68
1848	10,380,808 30	11,654,212 16	2,337,183 21		9,317,028 95
1849	8,957,107 98	10,241,094 63	1,224,985 80	1,326,043 18	9,016,128 83
1850	8,826,172 54	9,512,593 86	1,796,736 10	184,070 85	7,715,857 76
1851	8,097,046 67	8,851,375 93	1,273,434 87	2,575 19	7,577,941 06
1852	6,978,442 18	8,786,832 78	1,812,052 70	26,885 85	7,974,780 08
1853	8,371,406 71	10,012,218 67	1,112,289 29	55,050 77	9,499,829 38
1854	12,198,103 37	10,205,892 91	950,565 73	80 24	9,255,327 18
1855	10,447,751 77	13,362,986 19	1,205,206 50	1,170 29	12,157,770 69
1856	14,293,118 49	14,453,722 95	1,778,212 36	46,951 30	12,675,201 59
1857	12,716,584 65	13,323,202 16	1,731,374 22	1,080 25	11,569,827 94
1858	12,173,509 36	14,870,953 56	1,703,011 12	1,541 32	13,167,942 44
1859	14,906,329 49	16,396,160 31	2,163,218 32	60,400 49	14,232,941 99
1860	10,279,483 03	13,019,908 71	1,701,412 97		11,318,485 74
1861	23,305,139 51	14,383,677 45	1,996,520 93	69,426 27	12,387,156 52

Appropriations and expenditures of the Navy Department, &c.—Continued.

Year of expenditure.	Amount of annual appropriation.	Expenditures by warrants.	Repayments.	Amount carried to the surplus fund.	Net expenditures.
1862	\$55,700,422 74	\$45,074,548 30	\$2,434,195 21	\$15,362 66	\$42,640,353 09
1863	143,916,769 35	66,441,543 41	3,180,308 10	32,891 33	63,261,235 31
1864	118,910,288 32	92,283,642 03	6,578,678 29	.....	85,704,963 74
1865	124,882,467 07	130,404,702 76	7,787,268 69	900,459 39	122,617,434 07
1866	2,156,197 87	62,428,915 70	19,143,253 70	407 90	43,285,662 00
1867	20,033,616 56	43,352,167 46	12,277,201 56	39,993 03	31,074,965 90
1868	16,642,868 11	34,042,769 87	8,672,343 48	65,026,583 54	26,270,426 39
1869	17,687,297 48	28,968,903 98	9,136,380 69	.....	19,802,613 29
1870	17,905,952 77	27,499,324 76	5,292,733 12	3,331,446 40	22,206,591 64
1871	20,617,650 38	22,650,302 54	2,782,773 18	.....	19,867,529 36
1872	21,192,081 46	24,494,301 20	2,764,376 07	185,864 39	21,729,924 53
1873	23,635,779 69	27,054,364 22	8,323,548 33	39,974 00	23,730,815 89
1874	26,197,216 06	37,783,793 67	6,924,446 21	.....	30,859,347 46
1875	19,162,134 69	25,443,774 85	4,043,719 42	232,979 75	21,400,055 43
1876	18,872,725 06	23,496,843 51	4,576,872 82	3,090 82	18,919,970 69
Total	1,018,251,452 08	1,075,865,613 24	134,576,627 87	76,373,122 32	941,288,985 37

DETAILED REPORT OF THE MOVEMENTS OF VESSELS.

NORTH ATLANTIC STATION.

The force on this station is under the command of Rear-Admiral John C. Howell, who relieved Rear-Admiral S. D. Trenchard September 1, and hoisted his flag on the Powhatan the 14th of that month. It comprises the Powhatan (flag-ship), 17 guns; Plymouth, 12 guns.

The iron-clads Ajax, Catskill, Lehigh, Mahopac, and Manhattan (in partial commission at Brandon, James River, Virginia); the Montauk, Passaic, and Wyandotte (in partial commission at Washington, D. C.), are available for duty on this station. The iron-clad Canonicus remains in commission at New Orleans, La. The New Hampshire and Pawnee continue store-ships at Port Royal, S. C.

The Swatara, Ossipee, and Enterprise were attached to the station at different times during the year.

The Powhatan left Norfolk, Va., January 20, for a cruise to the West Indies, and visited St. Thomas; Santa Cruz; St. Kitts; St. Pierre, Martinique; Bridgetown, Barbadoes; Kingston, Jamaica; Santiago de Cuba; and Havana, arriving at the last-named port March 14. On the 17th left, and arrived at Norfolk, Va., the 28th, having touched at Port Royal, S. C. Sailed for New York May 21, and reached there the next day. Having received new boilers there, left September 25, and arrived at Portsmouth, N. H., the 27th. Departed thence October 14; reached Boston the next day; left the 21st, and arrived at New York the 23d.

The Plymouth returned to Norfolk, Va., January 26, from a cruise to Puerto Plata and Aspinwall. April 18, left and proceeded on a cruise to the West Indies, visiting Puerto Plata; Samana Bay; Kingston, Jamaica; Vera Cruz; and Brazos Santiago, Tex., reaching the last-named place May 23. Left the 25th, and after a short stay at Pensacola, Fla., arrived at New York the 22d of June. On the 25th of September sailed for Portland, Me.; reached there the 28th, and departed thence October 3 (touching at Portsmouth, N. H.) for St. Croix, West Indies, to look after American interests, an insurrection having broken out at that place. Arrived there the 19th of October, and is under orders to the Virgin Islands, St. John's, Porto Rico, St. Domingo City, and Port au Prince, and to return to Hampton Roads, Virginia.

The Swatara arrived in Samana Bay January 24, twelve days from

Norfolk, and remained until February 15, when she sailed, and visited Puerto Plata, Cape Haytien, Port au Prince, Santa Marta, Savanilla Bay, Cartagena, and Aspinwall, at which last-named port she arrived March 29, and remained till April 13, when she left for Vera Cruz, Mexico, arriving there May 11. After being engaged a short time surveying there, proceeded to New Orleans, La., arriving the 24th. June 10 sailed, touching at Pensacola and Key West, Fla., and reached Boston the 29th. On the 5th of November she was put out of commission.

The Ossipee left Norfolk January 22, arrived at Kingston, Jamaica, February 6, Brazos Santiago, Tex., March 27, and Pensacola the 31st. Left April 16, visited Havana, and arrived at Hampton Roads the 27th. Sailed May 1, reached Boston the 10th, and was put out of commission the 25th.

The Enterprise left New Orleans, La. (having been engaged on surveying duty in the harbor since November, 1877), March 23, and arrived at the Norfolk navy-yard April 9. On the 13th of that month was detached from the North Atlantic Station. (See movements of vessels on special service.)

SOUTH ATLANTIC STATION.

Rear-Admiral Edward T. Nichols is in command of the force on this station, which consists of the Hartford (flag-ship), 18 guns, and the Essex, 6 guns.

The Hartford arrived at Rio de Janeiro, Brazil, from Norfolk, Va., in December, 1877, and on the 19th of that month sailed for Montevideo, Uruguay, which port she reached January 2. June 3, in company with the Essex, left and arrived at Rio de Janeiro the 20th, having stopped at Maldonado.

The Essex arrived at the island of St. Helena January 2 (after the expiration of her cruise to Liberia and the west coast of Africa), and at Rio de Janeiro February 10; departed thence and arrived at Montevideo March 19. On the 16th of May proceeded to Colonia, on the Rio de la Plata, and Ensenada de Barragan; returning to Montevideo, where she remained till June 3, and then sailed for Rio de Janeiro, arriving there the 20th. Sailed September 21 for the island of Tristan d'Acunha to relieve the crew of the wrecked ship Mabel Clark.

PACIFIC STATION.

The North and South Pacific Stations have been consolidated, and the force on the Pacific Station, under the command of Rear-Admiral C. R. P. Rodgers, who relieved Rear-Admiral Alexander Murray, now comprises the Pensacola (flag-ship), 22 guns; the Alaska, 12 guns; the Lackawanna, 10 guns; and the Adams, 6 guns. The Onward remains as store-ship at Callao, Peru.

Rear-Admiral George H. Preble, who commanded the South Pacific, left that station in the Omaha, his flag-ship, December 4, 1877.

The Pensacola remained at Honolulu until early in April, when she left for San Francisco, Cal., and arrived at the Mare Island navy-yard, for repairs, May 1. Rear-Admiral Rodgers assumed command of the station July 11, relieving Rear-Admiral Alexander Murray, detached on his own application. On the 13th of November the Pensacola left the Mare Island navy-yard on a cruise along the coast of Mexico and as far south as Valparaiso.

The Lackawanna, upon her return from Puget Sound, was put out of commission at the navy-yard, Mare Island, January 24. After having

been repaired and refitted, she was, September 24, again put in commission, and left San Francisco October 30 on a cruise along the coast of Mexico and Central America.

The *Alaska* was put in commission at the navy-yard, New York, April 23; sailed June 14, reached Pernambuco, Brazil, July 19, and Rio de Janeiro July 30; arrived at Valparaiso, Chili, October 1, and Callao, Peru, the 23d.

The *Adams* sailed from Montevideo, Uruguay, November 1, 1877; on the 12th, while at anchor off Sarmiento Bank, received notice of a serious mutiny at Sandy Point, Straits of Magellan; proceeded there and offered assistance to the governor, and at his request remained until security was restored. For the services rendered, the commanding officer of the *Adams* received the thanks of the authorities of Chili. Arrived at Valparaiso December 14; left January 1, reached Callao the 11th, and Panama the 21st. Sailed May 10, with the Samoan ambassador and suite as passengers, and arrived at Apia, Samoan Islands, June 28.

The *Omaha* left Callao December 4, 1877, and arrived at Hampton Roads, Virginia, April 19, 1878, where Rear Admiral Preble hauled down his flag, and the vessel was ordered to Portsmouth, N. H., and was put out of commission there May 9.

EUROPEAN STATION.

The following vessels comprised, till November, the force on this station, which continues under the command of Rear-Admiral William E. Le Roy: *Trenton* (flag-ship), 11 guns; *Vandalia*, 8 guns; *Marion*, 8 guns; *Alliance*, 6 guns.

The terms of the *Vandalia* and *Marion* having expired, they have been ordered to return to the United States, and are now on their way.

The *Quinnebaug*, 8 guns; *Wyoming*, 6 guns; and *Enterprise*, 6 guns, have been designated for duty on this station.

The *Trenton* left Villefranche Harbor, France, December 25, 1877, and arrived at Smyrna, Turkey, January 2 following, where she remained until the 16th of March; departing that day she sailed for the Piræus (the harbor for Athens), Greece, and remained at that place till April 2; left that day, reached Villefranche the 7th, departed thence on the 27th, and arrived at Spezia, Italy, the next day, where she remained until June 11, when she sailed and reached Leghorn, Italy, the same day; remained at Leghorn till July 17, when she sailed for Gibraltar, arriving there the 24th, and at Lisbon, Portugal, the 26th; sailed thence the 30th, and arrived at Cherbourg, France, August 4; left September 3, and arrived off Netley, near Southampton, England, the same day; on the 25th sailed and anchored off Yarmouth, Isle of Wight; got under way the 26th, and arrived at Villefranche the 16th October.

The *Vandalia* left Villefranche December 13, 1877 (having Ex-President Grant on board), and visited Genoa, Naples, Palermo, and Malta, leaving the last-named port on the 31st for Alexandria, Egypt. Visited Alexandria, Port Said, Jaffa, and reached Smyrna February 22; departed thence the 27th, and arrived at Constantinople March 1; left there the 6th, and reached the Piræus the 8th. On the 15th, left for Naples, arriving the 18th; after a few days' stay, sailed for Villefranche (General Grant having left the ship). Left Villefranche April 23 for Smyrna, where she arrived May 2, having touched at Malta April 27. Remained at Smyrna till July 9, and, visiting Latakijah, reached Beirut the 16th. Left there the 27th, visited Messina, Naples, and Villefranche, arriving at the last-named port August 15, and remaining till

the 21st of September, when she sailed and reached Barcelona, Spain, the 23d; left the 30th and arrived at Cartagena October 1. On arrival at Port Mahon, Spain, received orders to Villefranche, which port she reached the 24th, and sailed homeward bound the 27th.

The Marion left Villefranche in January, and arrived at the Piræus February 1, and remained there till the 14th of March. Sailed that day for Smyrna and reached there the 15th. On the 10th of April left Smyrna for Volo, Turkey in Europe, to afford protection to an American citizen, and received assurance that he and all Christians in Volo should have ample protection; departed thence the 12th and returned to Smyrna the 13th. May 3, left for Villefranche, and sailed from there the 15th for Gibraltar, where she arrived the 20th, her commanding officer having been appointed arbitrator on a question of boundary between Great Britain and Liberia. The arbitration having been postponed, the Marion left June 27, and reached Villefranche July 1. On the 15th sailed for Barcelona, Spain, where she arrived the 17th; left August 24 and reached Leghorn, Italy, the 31st; sailed thence September 10, and arrived at Naples the 12th; departed the 1st of October and reached Trieste, Austria, leaving there the 22d for Villefranche, where she arrived November 2, and sailed homeward bound the 14th.

The Alliance left Villefranche in February and arrived at Smyrna the 24th, and departed March 5 for the Piræus, reaching there the 8th and remaining till the 28th, when she sailed, and, touching at Messina and Naples, arrived at Villefranche April 10; left May 18 and reached Marseilles the 19th. On the 28th of May sailed, and arrived at Barcelona June 1, left the 5th, reached Port Mahon the 6th, and sailed on the 8th; visited Malaga, and arrived at Gibraltar the 17th; left the 22d for Cadiz, Spain, visited Tangiers, and arrived at Cadiz the 24th. On the 1st of July sailed and visited Lisbon, Portugal, and Havre, France, arriving at Havre the 11th. Left August 6, visited Cherbourg and Gibraltar, and arrived at Villefranche the 19th. On the 18th sailed and reached Leghorn the 20th; sailed thence the 27th for a cruise in the eastern waters, making Smyrna her headquarters.

The Quinnebang was put in commission at League Island, Pennsylvania, October 2, 1878; left the 17th for Norfolk, where she arrived on the 20th.

The Wyoming left Washington on the 2d of November and New York the 26th for duty on this station.

The Enterprise left New York on the 16th November for duty on this station.

ASIATIC STATION.

Rear-Admiral Thomas H. Patterson continues in command of this station, and the force comprises the Monongahela, 11 guns; Monocacy (temporary flag-ship), 6 guns; Ashuelot, 6 guns; Alert, 4 guns; Ranger, 4 guns, and Palos.

The Tennessee, the former flag-ship on this station, returned to the United States in July, 1878; and the Kearsarge also returned. These vessels have been put out of commission.

The Richmond is under orders to leave Boston, to report for duty as the flag-ship.

The Tennessee left Yokohama, Japan, December 4, 1877, arrived at Kobe the 6th, Nagasaki the 11th, and Shanghai, China, the 20th. On the 7th January left, and reached Hong-Kong, China, on the 21st, having stopped at Amoy. On the 2d of March sailed for New York, via the Suez Canal, and arrived July 6. She was put out of commission on the 23d.

The Monongahela left New York September 22, 1877, and reached Hong-Kong March 12, 1878. On the 29th sailed for Shanghai for repairs, arriving the 9th of April, and was there at last accounts.

The Monocacy arrived at Nagasaki from Kobe December 1, 1877, at Shanghai the 7th, Amoy the 13th, Hong-Kong the 19th, and at Bangkok January 7, 1878. On the 28th left and reached Saigon, Cochin China, February 1, and Hong-Kong the 15th. On the 2d of March Rear-Admiral Patterson transferred his flag from the Tennessee to the Monocacy, and left with that vessel on the 7th, visiting Swatow, Amoy, Foochow, and Ningpo, and arriving at Shanghai the 26th. Left May 1; reached Nagasaki the 6th; remained there till the 20th, when proceeded to Yokohama, touching at Kobe, and arriving at Yokohama the 29th, where she was at last accounts.

The Ashuelot arrived at Shanghai for repairs November 27, 1877, from Tientsin, and remained till April, 1878, when sailed and arrived at Nagasaki. Surveyed the Meac Suna group and Pallas Rocks to determine their position; visited Kobe, and arrived at Yokohama August 23. Left October 3; arrived at Kobe the 5th, under orders to Bangkok, Siam, visiting *en route* Nagasaki, Foochow, Amoy, Hong-Kong, and Manila, and on her return to call at Saigon, Pak-hoi, and Hoi-How.

The Alert left Yokohama March 8, 1878, and arrived at Shanghai the 16th. Left in the latter part of April for Amoy and Swatow, and inquired into the alleged coolie traffic, and was at last accounts at Foochow, under orders to Swatow, Amoy, and Hong-Kong, to search on the way for the rock upon which the American bark Forest Belle is alleged to have struck.

The Ranger left Shanghai January 5, 1878; Amoy February 4; arrived at Hong-Kong, having touched at Swatow, the 13th; visited Canton; and on the 27th sailed for the island of Formosa to afford relief at the wreck of the American bark Forest Belle. Arrived at Amoy March 8, and in the latter part of April left for Hong-Kong, Whampoa, Macao, and Canton, and inquired into the alleged coolie traffic. Was at last accounts at Hong-Kong, under orders to Nagasaki, Kobe, and Yokohama.

The Palos left Shanghai April 30, 1878, and visited Cheefoo, New Chwang, and Tientsin and was at last accounts at Tientsin, with orders if her services are not required there, to leave for Shanghai.

The Kearsarge left Nagasaki September 3, 1877, and arrived at Boston (via the Suez Canal) December 30. She was put out of commission at Portsmouth, N. H., January 15, 1878.

SPECIAL SERVICE.

Surveying duty.

The Enterprise sailed from Norfolk, Va., for Para, Brazil, May 1, and arrived there the 24th. Having completed the survey of the Amazon and Madeira Rivers, which she was ordered to make, left Para September 7, and reached New York on the 25th.

The Tuscarora was put in commission at the navy-yard, Mare Island, Cal., January 10, 1878, and left on the 28th to make soundings by running an open traverse from San Diego to Cape Saint Lucas, defining the true ocean-bed; to locate the "Tartar Shoal"; and make a good running survey of the coast of Guatemala, &c. She returned to San Francisco October 15, and left, to resume her work, on the 28th of November.

The Gettysburg has continued her survey of ports in the Mediter-

nean, and the Guard her astronomical work on the coast of Portugal and of Brazil. The last-named ship has returned to the United States, and was put out of commission at Portsmouth, N. H., December 14.

The Ticonderoga was put in commission at the navy-yard, Portsmouth, N. H., November 4, reached Norfolk, Va., the 27th, and sailed on her cruise December 7.

Commodore R. W. Shufeldt has received instructions to proceed with that vessel on a special cruise in the interests of commerce and navigation along the east and west coasts of Africa and to the East Indies. Commodore Shufeldt has also been designated as arbitrator in a pending question between Great Britain and Liberia, with regard to the northwest boundary between the latter country and the British possessions on the African coast.

PARIS EXPOSITION.

Under the 3d section of the act of Congress approved December 15, 1877, the following-named vessels were assigned the duty of transporting articles for the Universal Exposition at Paris, viz: Constitution, Constellation, Wyoming, Portsmouth, and Supply.

The Constitution was put in commission at Philadelphia January 9, 1878, left on the 28th of February, and arrived at Havre, France, April 2.

The Constellation left New York March 27, and arrived at Havre April 22. After discharging her cargo, left May 11 and returned to New York, arriving there July 7.

The Wyoming left New York April 6, and arrived at Havre the 22d. After discharging cargo, visited Rouen, France, and Southampton, England, which last-named port she left June 25, and reached Norfolk, Va., August 22, and Washington September 15.

The Portsmouth having arrived at Washington February 16, after a sail of nearly four months from San Francisco, Cal., left the 27th for New York, reached there March 6, and sailed the 16th for Havre, arriving at the last-named port April 6. On the 1st of November left Havre for New York.

The Supply was put in commission at New York January 14, and sailed February 25 for Havre, arriving there March 22.

TRAINING-SHIPS, ETC.

The Minnesota and Saratoga have been used as training-ships for apprentices in the Navy; the former has cruised in Long Island Sound, and the latter along the Atlantic coast and to the Bermuda Islands.

The Constellation and Mayflower have made their usual practice-cruises with cadet-midshipmen and cadet-engineers respectively.

The Jamestown (California) and the St. Mary's (New York) continue to be used under the act of Congress of June 20, 1874, as State marine school-ships.

The Rio Bravo has remained on the Rio Grande. The Michigan has made her usual cruise in the lakes; and the Tallapoosa has made her regular trips as a dispatch-vessel from Washington to the navy-yards and stations.

The Speedwell has been on duty connected with the United States Fish Commission during the summer, and until October 12, when she was put out of commission at the navy-yard, Washington.

The Despatch has continued on special duty at Constantinople.

APPENDIX.

No. 1.—ESTIMATES, SECRETARY'S OFFICE.

Estimates of appropriations required for the service of the fiscal year ending June 30, 1880, by the Navy Department.

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Amount appropriated for the current fiscal year ending June 30, 1879.
SALARIES.		
Secretary, per act June 19, 1878.....	\$8,000	
Chief clerk, per act June 19, 1878.....	2,500	
Debursing clerk, per act June 19, 1878.....	2,000	
For four clerks class four, per act June 19, 1878.....	7,200	
For two clerks class three, per act June 19, 1878.....	3,200	
For one stenographer, per act June 19, 1878.....	1,600	
For one clerk class two, per act June 19, 1878.....	1,400	
For four clerks class one, per act June 19, 1878.....	4,800	
For three clerks, at \$1,000 each, per act June 19, 1878.....	3,000	
For two messengers, per act June 19, 1878.....	1,680	
For two laborers, per act June 19, 1878.....	1,320	
	36,700	\$36,700
CONTINGENT EXPENSES.		
For stationery, furniture, newspapers, and miscellaneous items, per act June 19, 1878.....	2,500	2,500
SALARIES, BUILDING.		
Superintendent, per act June 19, 1878 (R. S., p. 69, sec. 416).....	250	
For five watchmen, per act June 19, 1878.....	3,300	
For two laborers, per act June 19, 1878.....	1,320	
	4,870	4,870
CONTINGENT EXPENSES.		
For incidental labor, fuel, lights, and miscellaneous items, per act June 19, 1878.....	5,000	5,000
POSTAGE.		
For official postage-stamps for the Secretary's Office and the bureaus of the Navy Department, per act June 19, 1878.....	20,000	20,000
PAY OF NAVY.		
For officers on sea-duty, officers on shore and other duty, officers on waiting-orders, officers on retired-list; clerks; extra pay to enlisted men, exchange and mileage, officers in excess of present list, and changes of duty, &c.; pay of petty officers, seamen, ordinary seamen, landsmen, and boys, including men in the engineers force; and for the Coast Survey service, 7,500 men, at the pay prescribed by law; appropriated May 4, 1878.....	7,350,000	7,350,000
CONTINGENT, NAVY.		
Board and furniture of buildings and offices not in navy-yards; expenses of courts-martial and courts of inquiry, boards of investigation, examining boards, with clerks and witnesses fees, and traveling expenses and costs; stationery and recording; expenses of purchasing-paymasters' offices at the various cities, including clerks, furniture, fuel, stationery, and incidental expenses; newspapers and advertising; foreign postage; telegraphing, foreign and domestic; copying; mail and express wagons, and livery and express fees, and freight; all books for the use of the Navy; care of library; experts' fees and costs of suits; commissions, warrants, diplomas, and discharges; relief of vessels in distress, and pilotage; recovery of valuables from shipwrecks; quarantine expenses; care and transportation of the dead; reports, professional investigation, and information from abroad; and all other emergencies and extraordinary expenses, arising at home or abroad, but impossible to be anticipated or classified; appropriated May 4, 1878.....	83,000	83,000
PRINTING AND BINDING.		
Printing and binding for the Navy Department, to be executed under the direction of the Public Printer, per act June 20, 1878 (R. S., p. 720, sec. 3661).....	53,000	53,000

No. 2.—NAVAL ACADEMY.

REPORT OF SUPERINTENDENT.

UNITED STATES NAVAL ACADEMY,
Annapolis, Md., November 18, 1878.

SIR: I have the honor to report to the department that, in obedience to its orders, I relieved Rear-Admiral C. R. P. Rodgers as superintendent of this Academy on the 1st of July last.

The academic year had then just closed, and the cadet-engineers had sailed in the *Mayflower* on their summer cruise. Owing, however, to the non-arrival of the *Constellation* from Europe, the cadet-midshipmen detailed for sea-service did not leave Annapolis till the 24th of July.

During the month of August I visited the *Constellation* and the *Mayflower*, and found them in a highly efficient condition. In September I returned to the Academy. On the 14th of September, 134 candidates for appointment as cadet-engineers presented themselves, of whom the 25 best qualified were received into the Academy, arranged in the order of merit, according to law.

The examination of candidates for admission as cadet-midshipmen commenced September 23, and 17 were found duly qualified, and admitted into the Academy. These, with the 24 admitted in June last, make a total of 41 cadet-midshipmen appointed this year. There now remain in all, attached to the Academy, 268 cadet-midshipmen and 102 cadet-engineers.

The estimates for the support of this institution for the fiscal year ending June 30, 1880, were transmitted to the department on the 15th ultimo, and I have submitted for insertion in the "sundry civil bill" an estimate of \$60,000 for the erection of an additional wing to the quarters of the cadets. This estimate has also been submitted by my predecessor, and the improvement recommended is considered a highly necessary one.

In conclusion, I take pleasure in referring to the reports of Commander H. L. Howison and Lieut. Commander A. D. Brown, the commanding officers of the practice-ships, as showing the able and efficient manner in which they, and all the officers under their command, performed their arduous and important duties, and as giving evidence of the general good conduct and fine bearing of the cadets.

I am, sir, your obedient servant,

FOXHALL A. PARKER,
Superintendent.

Hon. R. W. THOMPSON,
Secretary of the Navy, Washington, D. C.

REPORT OF BOARD OF VISITORS.

UNITED STATES NAVAL ACADEMY,
June 20, 1878.

SIR: The board of visitors appointed to attend the annual examination at the United States Naval Academy have the honor to submit the following report of their proceedings:

The board met on the 11th instant—all the members, except General Wager Swayne and Dr. A. Wheeler, being present—and organized as

follows: Rear-Admiral John L. Worden, president; Maj.-Gen. Jefferson C. Davis, vice-president; and Master S. A. Staunton, secretary.

The usual committees were appointed, and at least one session held daily.

The board desire to express their satisfaction at the readiness with which the superintendent and those under his command have supplied to the various committees the information wanted, and the cheerfulness with which their labors were facilitated.

The Rev. Dr. A. Wheeler, a member of the board, arrived on the 12th instant.

SEAMANSHIP, NAVIGATION, AND GUNNERY.

It is found that in the departments of seamanship, gunnery, and navigation the cadet-midshipmen show a high degree of proficiency, bearing evidence of the careful training they have undergone from their instructors, both theoretically and practically, in these important branches, so eminently professional in their character, without a knowledge of which no midshipman can expect to be a thorough sea-officer.

The board also are of the opinion that, while not desiring in the least to disparage the exercises of the midshipmen on board the Dale, and which were of the most creditable character, yet we are somewhat inclined to believe that these exercises could be more efficiently conducted in a vessel *under way*, thereby imparting a more thorough practical knowledge of evolutions similar to those on board of a ship of war in commission, and therefore reiterate the recommendation of the previous board that two sailing brigs be substituted for the Dale, which is now "tied up" at the wharf. In addition to these vessels, we would respectfully suggest that one of the class of the Wachusett be obtained and fitted with a light spar-deck which would give ample room for working ship and battery below. A vessel of the class referred to would also afford instruction to the cadet-engineers in the practical duties of their profession, and which can be acquired more thoroughly in a vessel under way. A better class of boats should be supplied for the boat-guns, and also new and lighter built boats for the exercises in which the present ship's boats are now used. Six small steam-launches precisely similar for fleet tactics would be extremely useful in this important branch of an officer's education.

STEAM.

The instructions in the very important department of steam-engineering are thorough, and given in most of its branches, theoretical and practical. We consider it desirable, as regards the latter, that another shop be added, so that in this respect the course may be more complete.

The practical work should be extended in connection with the art of designing machinery, in order that the cadet-engineer may be educated in not only a knowledge of the forms and proportions required by theory, but in a knowledge of the best way of practically executing the work with reference to the tools employed. It is desirable to give him a knowledge of the cost of material and time of different modes of effecting substantially the same objects. This is not done in the efficient manner it should be, for want of space and tools, both being inadequate for the number of cadets.

The teaching of the use and manipulation of the various organs of steam machinery is done by means of fine apparatus in the most complete manner.

The designing of machinery, involving an extensive knowledge of descriptive geometry, is also very efficiently taught.

MATHEMATICS AND MECHANICS.

The instruction in mathematics and mechanics is exceptionally good. Throughout the course the aim seems to be, not so much to make the process of mathematics the *end* of study, as to make them the efficient *means* by which practical problems are solved. The increasing importance of mathematics to the modern arts of war on land and sea fully justifies the course here pursued. We desire to mention with special emphasis the work done in some of the *elective branches*.

PHYSICS.

The department of physics shows great recent development. The additions to the lecture-rooms and laboratories have been made with judgment and exquisite taste. The apparatus includes many pieces of the latest design and the most finished construction.

A somewhat careful examination of papers shows that the instruction, in both theoretical and practical physics, is exceedingly careful and thorough.

We take pleasure in reporting the department in excellent condition.

ENGLISH STUDIES AND MODERN LANGUAGES.

Attending the actual examination of cadets in these departments as far as could be done, and reviewing the examination-papers, which the system of written examinations has greatly facilitated, the board are well pleased with the progress made, and commend the instructors, both for their methods and labors, and congratulate them and the cadets on their success and attainments. The intertranslation of English, French, and Spanish is heartily approved; the first being the commercial, and the second the diplomatic language of most of the world, and the Spanish being the language of our next-door neighbors to the south.

The attainments of cadets in United States history and international law are very commendable.

There seems to be nothing of importance in this department to criticise adversely, and therefore we express our satisfaction at its condition.

GROUNDS, BUILDINGS, AND SANITARY CONDITION.

The beauty and high degree of culture shown in the grounds of the academy are commendable, and so well known that a description is unnecessary. The residences are comfortable, and the quarters and buildings of the academy, including workshops and recitation-rooms, are kept in good repair, and, perhaps, are fully adapted to their several uses. Upon this subject, however, the board have some remarks and suggestions to make that are deemed important in the way of changes and improvements, most of which have been recommended by former boards, as essential to the growth, comfort, and future prosperity of the academy.

Upon the particular topic of quarters the board are informed that the present dormitory, or "new building," is not sufficiently large to accommodate *all* of the cadets, and the division of quarters, as now existing, necessitates a double amount of guards, watchmen, &c.; thus not only increasing expense, but lessening the efficiency of discipline. We, therefore, recommend that the new building be sufficiently enlarged, or the erection of another building, so that the entire body of cadets may be comfortably domiciled. We also especially urge, for well-known sani-

tary reasons, the immediate removal into a separate building of the kitchen, laundry, and store-rooms, now occupying the basement, or lower story of the cadet quarters.

The room for drawing, at the top or attic of this building, is unsuited for the purposes for which it is used, and is almost entirely without ventilation. The old quarters, now occupied by the first class cadet-midshipmen and all cadet-engineers, with little expense could be made useful for other purposes of the academy. The recommendation of former boards in regard to enlarging the work-shops for the classes of cadets in the department of steam-engineering is considered so patent that it is only necessary to refer to it again, and urge its adoption.

The present armory, which is built of wood, and is a mere shell, is totally inadequate to the purposes for which it is used. A suitable and substantial building should be erected in its stead, and this ought to be done without delay.

The board are aware that the various repairs and improvements herein recommended will require the action of Congress, and, through the Navy Department, desires to recommend such legislation as will fully carry out the important suggestions herein made.

The regulation of the Naval Academy prohibiting the use of tobacco, as a sanitary measure, is a wise provision, and, to use the language of Medical Inspector Gihon, in his well-digested report on this subject, the board are of opinion "that the regulations against the use of tobacco, in any form, cannot be too stringent; and, further, that while smoking should be wholly interdicted, special care should be exercised to prevent the substitution of chewing."

The board have carefully examined into the kind, quality, and cooking of the food furnished the cadets, and cheerfully bear testimony to the efficient management of the commissary of the Academy. This department of the administration of affairs is most successfully served.

The sanitary condition of the Academy is remarkably good; the hospital is a model of neatness and comfort, reflecting the ability and efficiency of its medical officers. The hospital has now no inmates, and the general health of the cadets is excellent.

The board are of the opinion that a more healthy-looking body of young men than the inmates of this institution cannot be found in the country.

FINANCE AND THE LIBRARY.

On financial matters there was strictly little or nothing to come under our notice. The board, however, looked into the operations of the business of the store, and found that it was conducted in an economical manner; the economy inuring to the benefit of the officers and the cadets.

The mode of keeping the accounts of the commissary was also investigated. We carefully scrutinized the method and arrangement of the accounts which have been instituted by the present commissary, Paymaster Kenny, and found them especially well adapted to the purpose. They are very precise and exact in their operation, and we think a better system could not possibly be devised.

The appointment of a naval officer to the position of commissary has resulted in a material improvement in the administration of the department and great saving in expenses to the cadets.

The library has become an important agent in the educational work of the Naval Academy. Its shelves are supplied with most valuable works on all the branches embraced in the course of instruction. Naval science and art, as well as naval history and biography, are well repre-

sented in the collection, as are also the abstract sciences, voyages and travels, general history, and literature. The value of the collection is enhanced by the possession of numerous publications of the leading scientific and professional bodies of Europe and America. In common with the superior officers, the cadets enjoy the use of the books. In recreation hours the latter may be seen in numbers in the various rooms of the library assiduously consulting authorities and taking notes on subjects assigned them for discussion by the instructors. In this laudable work they are encouraged by the academic staff. Thus habits of diligent research and study are cultivated, and the results, as might be expected, are found to be most beneficial. It is of importance now that an annual appropriation for the purchase of books adapted to the purposes of the institution be continued, so that valuable professional, scientific, and literary publications, as they issue from the press, may be added to the collection.

The board would also recommend that a number of the best technical periodicals devoted to practical steam-engineering be added to the library. These periodicals supply a very important want, and are of almost as great value in ordnance construction and iron steamship building as in engineering. They contain the current events in such departments as they occur, both at home and abroad, and are the only media through which information most necessary to the cadet-engineers can be obtained.

ADMINISTRATION AND POLICE.

The board having availed themselves of the unrestricted opportunities offered, have carefully considered these subjects, and find no powers claimed or exercised by the superintendent and corps of instructors which extend beyond the pale of proper authority, and the result of their discipline and teachings commends itself to our approval.

MISCELLANEOUS.

The board have considered the letter of Chief Engineer C. H. Baker, U. S. N., head of department of steam-engineering, with the letter of Rear-Admiral C. R. P. Rodgers, U. S. N., superintendent, accompanying.

After careful consideration of the matter contained in these letters, the board are of the opinion that the privileges asked for by Chief Engineer Baker ought not to be granted, and referring to the papers appended marked A and B.

THE NAVAL HOSPITAL AND GROUNDS.

The board, while recognizing that the naval hospital grounds are not attached to the Academy, though subject to the superintendent as the senior officer, feel that this valuable property should be carefully preserved, and make this new recommendation, that it should be attached directly to the Naval Academy and come entirely under the jurisdiction of its superintendent, with powers to rent, if advisable, part or parts of the land and to use the proceeds at his discretion for the care of the buildings and roads.

The board, learning with regret that the admiral, Superintendent C. R. P. Rodgers, is about to sever his connection with this institution, cannot conclude its report without stating its high appreciation of the rare executive ability with which he has discharged the delicate, difficult, and important trusts assigned him. His administration, conducted with

so much justice, moderation, and kindness as to command our warm approbation, leaves the Naval Academy in the highest state of efficiency.

JOHN L. WORDEN,
Rear-Admiral, President.

JEF. C. DAVIS,
U. S. A., Vice-President.

C. H. WELLS,
Captain, U. S. N.

DANL. S. PRINTUP,
Georgia.

C. M. WOODWARD,
Saint Louis, Mo.

ALEX. H. BROWN,
South Carolina.

ISAAC H. REED,
New York.

WM. H. PARKER,
President Maryland Agricultural College.

B. F. ISHERWOOD,
Chief Engineer, U. S. N.

G. W. T. WRIGHT,
Minnesota.

P. O. HOOPER, M. D.,
Arkansas.

K. R. BREESE,
Captain, U. S. N.

A. WHEELER,
Pennsylvania.

The Hon. SECRETARY OF THE NAVY.

A.

NAVAL ACADEMY,
Annapolis, Md., June 10, 1878.

SIR: The subject of this communication is one that does not fall within the scope of my official cognizance as head of a department at the Naval Academy, nor does it, under existing usages, come within the purview of the academic board. Nevertheless, I trust it will not be thought unbecoming if I venture to submit the following views to your consideration, that they may, if no objection exists, be laid before the board of visitors, now convened to witness the annual examination.

The cadet-engineers of the Academy now comprised in the first class have been withdrawn from the battalion of naval cadets, and are organized so as to compose a body called the engineer division. Some of them are designated cadet-engineer officers. Their positions are the analogous of those enjoyed by the cadet officers of the battalion, carrying with them the rank of the latter, but no official function of any importance. When other naval cadets are exercised in the outdoor drills of the battalion, and at great guns, the cadets of the engineer division, comprising, as I have said, only the cadet-engineers of the first class, are instructed and exercised in workmanship in the department of steam-engineering, that is to say, in the several arts of the machinist, the pattern-maker, the smith, &c., arts in which they will have received a great deal of instruction in those regular study periods of the day that are assigned to cadet-midshipmen of the first class in seamanship, naviga-

tion, and gunnery, and those hours in which cadet-midshipmen are exercised in seamanship and boat-drills.

I am aware of no good reason why the cadet-engineers of the first class should be removed from the established organization, and I believe the segregation to be pernicious and opposed to sound policy. I believe that it should be altogether discontinued, and the cadet-engineers be placed upon the same footing in the battalion with all other cadets. Exclusion from the honors paid to cadet-midshipmen distinguished in conduct and character would, it seems to me, produce a disheartening effect upon individuals among the cadets so excluded, and might curb that wholesome spirit of emulation which it is commonly thought wise to foster.

The cadet-engineers, as it seems to me, are practically so excluded; the offices bestowed upon these have no such significance as those enjoyed by cadet-midshipmen; practically, no authority pertains to them and no responsibility. Their special practical exercises in steam-engineering, being nothing more than instruction in hand-work, do not offer occasion for such relations as do the soldierly exercises of the battalion, and so the office held by the engineer cadet is little more to him than a star on the merit roll. The battalion is the corps in which the community of cadets appear as a unit to the outside world. The exclusion of the first-class men of the cadet-engineers from it and from the hope of office in it appears to me a discrimination that must be thought invidious until its necessity shall have been proved.

It may be argued that the distinction is analogous to that which necessarily obtains in the naval service between line officers and engineer officers, and is therefore justifiable between the cadets of the Academy, who in a manner represent the line and the engineers. But engineer officers have the importance of authority and responsibility in the nature of their duties, independent of the relative rank they have with the line. There seems to be no necessary analogy between the relations of the line and staff officers in the Navy and the cadet-midshipmen and the cadet-engineers of the Academy. The cadets are all in the Academy for the same purpose, and the needs of training and of discipline are for their career within the Academy rather than for the service at large.

If the discrimination is founded upon the circumstance that cadet-midshipmen alone pursue the study of infantry and light-artillery tactics, the remedy is easily applied to cadet-engineers who have had three years' *practical* instruction in these drills. The regulations of the Academy, issued January 1, 1876, provided for this branch of infantry tactics (article 107).

If it is founded upon the expectation that cadet-engineers, in their future career, will take no part in combat in such a way as that knowledge of arms might be of use to them, the expectation is not warranted by the experience of the naval service. Commanding officers have sometimes found circumstances to require or to justify the employment of engineer officers in the discharge of duties that must have been performed with the more facility and thoroughness if these officers had already acquired some knowledge of the arms and the art of the soldier.

If cadet-engineers of the first class are excluded from office in the battalion because it is assumed that the experience acquired by the cadet officers in the exercise of authority is an advantage more befitting cadet-midshipmen than cadet-engineers, because the former are at some time to have commands and the latter are not, it would seem that the nature of the duties of engineer officers afloat have not been accurately borne in mind. There is certainly a field of command in which the engineer officer never appears, and which is the exclusive province of the line officer;

but within the limits of his authority the former has the same need of those personal qualities of manhood that have ever been found essential to the naval officer, such as aptitude, nerve, fertility of resource, attributes always the better developed by training.

Whatever enhancement of the facility of command may result to a few line officers in the future from this exclusion of engineer-cadets from the battalion of the Academy, it may be dearly purchased at the cost of that depression of spirit that must result from needless discrimination against a class of men in whom the habits of thought and action that belong to naval officers are commendable and becoming.

If cadet-engineers of the first class are excluded from the battalion because it is thought the practice of workmanship is of greater value to them than the outdoor drills, the same reason would demand the exclusion of cadet-midshipmen as well.

But the outdoor exercises are of inestimable value to the cadets. It is this outdoor training that gives that admirable physical development which will not be overvalued if rated the most precious of the advantages the service has derived from the Naval Academy—the sound body, without which the sound mind was an impossibility.

If the development of physical excellence is of any importance to the engineer officer, it would seem wise to require participation in those outdoor exercises in which music and pageant are joined with movement and muscular exertion to such good purpose that even the civilian colleges of the country seek their aid in the abatement of those ills that study-rooms and work-rooms engender. They may well rely upon the stirring sights and sounds and the concerted movements of the battalion to quicken the pulses of the sedentary student. The legislature of the nation has offered the services of Army officers to the colleges for this instruction of the future lawyers, merchants, and mechanics of the country in the use of arms. It seems strange that in a great military school of the government a whole class of its students should be excluded from the benefits of such instruction.

I am led to believe, then, that the best interests of the naval service and of the naval cadets will be furthered by placing the cadet-engineers on the same footing in the battalion with other cadets, making the appointments to the positions of field, company, and non-commissioned officers upon some principle of selection that shall not exclude cadet-engineers of the upper classes, and that those of the first class be required to take these tours of duty with cadet-midshipmen of the first class as officers of the day, a duty from which they are excluded by the terms of article 362, Regulations of the Naval Academy.

I am, sir, very respectfully, your obedient servant,

CHARLES H. BAKER,
Chief Engineer, U. S. N.

Rear-Admiral C. R. P. RODGERS, U. S. N.,
Superintendent, &c., &c.

UNITED STATES NAVAL ACADEMY,
Annapolis, Md., June 13, 1878.

SIR: In compliance with Chief-Engineer Baker's request, I submit to the Board of Visitors the expression of his dissatisfaction with paragraph 160 of the Naval Academy Regulations, as amended by the Navy Department, upon the recommendation of the superintendent.

His views do not seem to me sound nor his points well taken. During

the first three years of a cadet-engineer's course, in order that he may have the physical exercise so desirable for growing lads, he joins the cadet-midshipmen in their infantry and artillery drills, and in the instruction in boxing, fencing, signals, and gymnastics. This is not so much to prepare him for his profession, as for the benefit of his health. In the last year the instruction becomes more strictly professional, and the cadets of the first class give greater attention and time to preparation for their naval careers.

The cadet-midshipmen who are to become instructors in military exercises afloat, and are to hold command in divisions of armed men, become the cadet-officers in military drills; while the cadet-engineers, who are to be employed in the management and construction of steam-engines, are required to do manual work in the machine and boiler shop, such as it will be their duty to direct in their service on board ship. This duty will not be the command of armed men, but the care of steam-engines and their manipulation. For such practical work an academic course presents few facilities, and it is especially to be desired that the young gentlemen serving as cadet-engineers shall acquire skill in the use of tools and the knowledge to be gained in workshops. They have chosen the honorable career of an engineer, and they are not likely to prepare for it too well in the limited time given to practical work at the Naval Academy. It might as well be demanded that when they graduate they shall be assigned service in the armed divisions of our ships of war, and perform the duties of the sea-officer on deck, as to insist that they shall be given command of divisions of small-arm men and gunners here in our daily drills. They hold equal rank with the cadet officers of the line, they share the advantages of the cadet-officers' table, they wear the same grade-marks, and they constitute a division, commanded by cadet-engineer officers, on equal terms with the cadet-midshipmen. I think the instruction in the use of tools and in repairing and refitting boilers and engines, which should be given them in our well-appointed shops during the last nine months of their cadetship, is of far more importance to them than the gratification of their desire to command divisions of guns or small-arm men—commands which will not fall to them hereafter in their naval service. Their dignity has, in my opinion, been sufficiently considered in forming the senior class into an engineer division, commanded and officered by cadet-engineers, with the rank and privileges of the other cadet officers. The cadet-engineers and cadet-midshipmen are on equal footing here, but their training for different careers is necessarily somewhat different.

With great respect,

C. R. P. RODGERS,
Rear-Admiral, Superintendent.

Rear-Admiral JOHN L. WORDEN, U. S. N.,
President Board of Visitors, Naval Academy.

B.

NAVAL ACADEMY,
Annapolis, Md., June 17, 1878.

SIRS: Your special committee appointed to consider the letter of Chief Engineer C. H. Baker, U. S. N., head of department of steam-engineering, with the letter of Rear-Admiral C. R. P. Rodgers, U. S. N., superintendent, accompanying it, beg leave to submit the following:

After careful consideration of the matter contained in these letters,

the committee are of the opinion that the privileges asked for by Chief Engineer Baker ought not to be granted, and for the reason substantially set forth in the letter of the superintendent, which we adopt as conclusive. It is our opinion that the cadet-engineers of the Navy were established with the view of meeting the growing necessities of the Navy in the particular department of steam-engineering and for those particular purposes only; and that it is unwise to depart from this for fear it may result in making their services less effective.

Your committee, however, do not see any objection to the cadet-engineers receiving such instruction in command as may be desired from the execution of any office of theirs in the department of steam-engineering, which is provided for in the General Order No. 98, of September 18, 1877, defining the titles and relative rank of the cadet-engineer, and believe such instruction could advantageously be bestowed, but to grant the request asked for would defeat the very purpose for which a cadet-engineer is intended.

Respectfully, your obedient servants,

DANIEL S. PRINTUP.

K. R. BREESE,

Captain, U. S. N.

The Hon. BOARD OF VISITORS.

CRUISE OF THE CONSTELLATION.

UNITED STATES PRACTICE-SHIP CONSTELLATION,
Off Naval Academy, Annapolis, Md., September 30, 1878.

COMMODORE: I have the honor to submit the following report of the practice-cruise of this vessel during the past summer:

I assumed command on the 24th July last, relieving Capt. James A. Greer. Two days later, 38 first class, 1 second-class, and 71 third-class cadet-midshipmen were received on board. Two other third classmen reported August 20, at New Bedford, making the total number of cadets during the summer 112.

July 29 I got under way and proceeded down the Chesapeake in tow of the United States steamer *Fortune*, passing out to sea on the last day of July. When the *Fortune* left us I shaped our course for New Bedford, Mass., arriving there August 3. Here you came aboard, your flag was hoisted, and the exercises commenced for your inspection. At the expiration of ten days your flag was hauled down on your leaving us at Newport, R. I.

During your stay we ran around to Oak Bluffs, Martha's Vineyard, for one day, to give the cadets an opportunity to visit that place, returning to Buzzard's Bay and cruising until the 14th of August, when we proceeded to Newport. Here the cadets visited the torpedo station for their instruction and information.

August 19 I returned with the ship to Buzzard's Bay and continued the instruction of the cadets until September 3, on which day I started for the Chesapeake Bay, arriving on the morning of the 7th. From this time until the 21st we exercised in the bay, and then came into Annapolis Harbor. Here the cadets stripped this ship and rigged the drill-ship *Dale*.

The cadets were landed on the morning of the 28th of September to commence their academic course, and the vessel went out of commission to-day.

During the cruise the first classmen have had, in succession, charge of the deck, performing the various evolutions of "tacking," "wearing," "boxhauling," "chappeling," "getting under way," and "anchoring."

They also, in succession, have performed the duties as officers of the fore-castle, midshipman of the quarter-deck, mates of the gun and berth decks, and of the hold and hull.

They were stationed as captains of the various parts of the ship and did duty as seamen in handling the spars and sails.

They have been carefully instructed, both theoretically and practically, in the problems of navigation relating to finding the ship's position at sea, such as day-work, finding latitude and longitude from observations of the sun, moon, and stars; finding compass-errors by observations for azimuth and amplitude, and constructing deviation tables.

They were carefully instructed in the use of charts and the movements of the tides, and other minor matters relating to navigation.

The third class were arranged in five sections, and the sections placed in the immediate charge of the five watch and divisional officers, who at the end of each week examined and instructed them orally on the work of the past week.

They were required to keep seamanship note-books, which were commenced the day they came aboard. Weekly orders were issued fully explaining the work required. They contained directions for the cadets to give full explanations, in writing, of all the "standing rigging," how "fitted" and "set up," how all of the "running rigging" was "rove."

Sketches of this rigging, the "fife" and "pin" rails, "spars," "sails," "anchors," and other parts of the ship, were required.

They were also instructed in "heaving the lead," "steering," "knotting," "splicing," "fitting rigging," and in the duties required of top-men.

The conduct of the cadets has been good with a few exceptions, and the cruise, I believe, has been instructive and valuable, although we have had one month less time than has been the custom for years.

In carrying out the work of the practice-cruise I have been greatly indebted to the untiring and thoughtful zeal of the executive officer, Lieut. Commander Charles V. Gridley, as well as to all my officers, who have been attentive and faithful in the performance of their duties.

I inclose, in duplicate, cruise reports of the professional aptitude, &c., of the cadet-midshipmen.

I am, sir, very respectfully, your obedient servant,

H. L. HOWISON,

Commander U. S. N., Commanding.

Commodore FOXHALL A. PARKER,

Superintendent United States Naval Academy, Annapolis, Md.

CRUISE OF THE MAYFLOWER.

UNITED STATES STEAMER MAYFLOWER (4th rate),
Annapolis Roads, September 28, 1878.

COMMODORE: In obedience to the order of your predecessor, I respectfully submit the following report of the practice-cruise of this vessel:

The cadet-engineers of the first and third classes were embarked on the 21st of June.

The vessel left Annapolis on the 24th of June, and the cruise closed on the 28th of September.

Table I shows the ports visited during the cruise.

TABLE I.

Name of port.	Date.	Name of port.	Date.
Norfolk, Va.	June 25.	Providence, R. I.	August 16.
New Castle, Del.	June 30.	Newport, R. I.	August 19.
Wilmington, Del.	July 1.	Bristol, R. I.	August 20.
Edgemoor, Del.	July 4.	Providence, R. I.	August 21.
Chester, Pa.	July 5.	Newport, R. I.	August 24.
League Island, Pa.	July 11.	New London, Conn.	August 28.
Philadelphia, Pa.	July 12.	Cold Spring, N. Y.	August 31.
New York, N. Y.	July 19.	Newburgh, N. Y.	September 2.
New London, Conn.	July 22.	West Point, N. Y.	September 3.
Boston, Mass.	July 26.	New York, N. Y.	September 5.
Chick Bluffs, Mass.	August 8.	Washington, D. C.	September 17.
New Bedford, Mass.	August 10.	Annapolis, Md.	September 19.
Newport, R. I.	August 14.	Washington, D. C.	September 21.
Bristol, R. I.	August 15.	Annapolis, Md.	September 28.

Table II shows the various establishments visited by the cadets while the vessel was at the different ports:

TABLE II.

Place.	Establishment.
Norfolk, Va.	Navy-yard; dry-dock; machine-shops; Franklin, Galena, and Standish.
New Castle, Del.	Tube Works of Morris, Tasker & Co.
Wilmington, Del.	Harlan & Hollingsworth Co.'s; Jackson Sharp & Co.; Sidel & Hastings; Lobdell Car Wheel Company.
Edgemoor, Del.	Edgemoor Iron and Bridge Works.
Chester, Pa.	John Boach & Sons.
League Island, Pa.	Dictator and Quinnebang.
Philadelphia, Pa.	Baldwin Locomotive Works; Cramp & Sons; Hughes & Patterson's Rolling Mills; Empire Chain Works; Switch Back Railway; at Mauch Chunk; Bethlehem Steel Works; Zinc Works; Prospect Coal Mine and Hazzard Manufacturing Company's Wire Works at Wilkesbarre, Pa.
New York, N. Y.	Navy-yard; dry-dock; Powhatan and Tennessee.
New London, Conn.	Naval station; Florida.
Boston, Mass.	Navy-yard; rope-walk; wood-preserving process; Richmond; Wachusett; Massachusetts Institute of Technology; Norway Iron Works; Waltham Watch Factory; American Steam Gauge Company.
New Bedford, Mass.	Twist Drill Works; Wamsutta Cotton Factory.
Newport, R. I.	Torpedo Station.
Bristol, R. I.	Herreshoff Manufacturing Company.
Providence, R. I.	Providence Tool Company; Providence Steam Engine Company; Corlies Engine Company; American Screw Company; Hope Pumping Station; Brown & Sharp Tool Manufacturing Company; Nicholson File Company.
Cold Spring, N. Y.	West Point Foundry.
Newburgh, N. Y.	Greenwood Furnaces.
West Point, N. Y.	Military Academy.
New York, N. Y.	Delamater Iron Works; Morgan Iron Works; Chrome Steel Works; New York and Brooklyn bridge; American Institute Fair.
Washington, D. C.	Navy-yard; foundery; copper-rolling mill, &c.

At all these places we were courteously received, and in many cases special machinery was set in operation for the benefit of the cadets.

Each cadet has been required to keep a journal in which to record his impressions of the various processes seen by him; these have been carefully and frequently read by the engineer officers, and at times by myself. Special mechanisms have, in addition, been sketched by the cadets.

Each cadet of the first class has been required to perform, in turn, the duties of machinist in the upper and lower engine-room, and each cadet of the third class has, in turn, stood watch in the fire-room while the vessel was under way.

The conduct of the cadets, with two exceptions which have been specially reported to you, has been in the main good.

I beg leave to call your attention particularly to the extreme kindness shown us by the Lehigh Valley Coal Company (through Mr. Israel W. Morris, their secretary), in furnishing us, free of all charge, a special car to conduct us to Bethlehem, Mauch Chunk, and Wilkesbarre, and thus affording to all a most rare and agreeable trip.

I also beg leave to call your attention to the utter unsuitability of this vessel for the purposes of the practice cruise; her accommodations for both crew and cadets are extremely limited; the steerages are so small that only two-thirds of the cadets have been on board, owing to the sheer inability of the vessel to stow the remainder; and of those on board some eight have been obliged to sleep in the hammock-boxes on deck, owing to insufficient ventilation in the lower steerage. Added to all this is the fact that the ordinary routine of a man-of-war cannot possibly be carried out, and the cadets leave the Academy with entirely erroneous impressions of the manner of carrying on duty on board ship.

I beg to make the following recommendations: That the visit to Wilmington be omitted; a vessel can anchor off Edgemoor, whence trains run to Wilmington (distant only three miles); that in addition to the engineer instructors, there be ordered an engineer officer who shall have charge of the machinery solely, and have nothing to do with the instruction of the cadets when in port; and that some arrangement be made by which the cadet-midshipmen of the first class may have an opportunity to visit some of the various establishments on the Delaware; an inspection of Roach's ship-yard and rolling-mill, and of the Bessemer-steel works at Bethlehem, alone, would be of the greatest assistance to them in the study of ship-building and ordnance in their first-class year.

A detailed report of the aptitude, conduct, &c., of the cadets is herewith inclosed.

Very respectfully, your obedient servant,

ALLAN D. BROWN,

Lieutenant-Commander, Commanding.

Commodore F. A. PARKER, U. S. Navy,

Superintendent United States Naval Academy, Annapolis, Md.

ESTIMATES FOR NAVAL ACADEMY.

UNITED STATES NAVAL ACADEMY,
Annapolis, Md., October 15, 1878.

SIR: I have the honor to transmit herewith, in duplicate, estimates for the support of the Naval Academy, for the fiscal year ending June 30, 1880.

I am, very respectfully, your obedient servant,

FOXHALL A. PARKER,

Superintendent.

Hon. R. W. THOMPSON,

Secretary of the Navy, Navy Department, Washington.

UNITED STATES NAVAL ACADEMY,
Annapolis, Md., October 15, 1878.

SIR: I have the honor to call the attention of the department to that portion of the naval appropriation bill for the fiscal year ending June

30, 1879, relative to the Naval Academy, by which it will be perceived that while Congress made specific appropriations for it under the several heads of appropriation, the summing up of the amounts under three of these heads does not agree with the actual amounts named in the bill as appropriated, viz :

"Pay of professors and others"	\$52,518 00
Should be	52,526 00
"Pay of watchmen and others"	24,080 75
Should be	24,180 75
"Pay of mechanics and others"	16,115 95
Should be	16,835 95

Making a difference to the Academy of \$728.

Believing it the intention of Congress to give us the amounts named in the bill, I have, in submitting the estimates for the fiscal year ending June 30, 1880, been governed in their preparation by the specific amounts appropriated under the several heads of appropriation, and not by the erroneous summing up of them.

I am, very respectfully, your obedient servant,

FOXHALL A. PARKER,
Superintendent.

Hon. R. W. THOMPSON,

Secretary of the Navy, Navy Department, Washington.

Estimates for the support of the United States Naval Academy, for the fiscal year ending June 30, 1880.

Object of expenditure.	Estimated amount.
PAY OF PROFESSORS AND OTHERS.	
One professor of modern languages (head of department)	\$2,500 00
One professor of drawing (head of department)	2,500 00
Three professors, viz: one of physics, one of chemistry, one of Spanish, assistants, at \$2,200 each	6,600 00
Seven assistant professors, viz: four of French, two of English studies, history and law, one of drawing, at \$1,800 each	12,600 00
Sword-master, at \$1,500, and two assistants, at \$1,000 each	3,500 00
Boxing-master and gymnast	1,200 00
Assistant Librarian	1,400 00
Secretary	1,800 00
Three clerks to superintendent, at \$1,200, \$1,000, and \$800 each	3,000 00
One clerk to commandant of cadets	1,000 00
One clerk to paymaster to audit cadets' accounts	1,000 00
One apothecary	750 00
One baker	600 00
One mechanic in department of physics and chemistry, making and repairing instruments and apparatus	600 00
One mess-man, at \$288; one cook, at \$325.50; and messenger to superintendent, at \$600	1,213 50
One armorer, at \$529.50; gunner's mate, at \$489.50; and quarter-gunner, at \$409.50	1,408 50
One coxswain for gymnasium, at \$469.50; one seaman in department of seamanship, at \$349.50; one seaman in department of astronomy, &c., at \$349.50; one seaman in department of physics and chemistry, at \$349.50	1,518 00
One bandmaster, at \$528, and 21 first-class musicians, at \$348 each	7,836 00
Seven second-class musicians, at \$300 each	2,100 00
	53,126 00
Amount appropriated under this head, "pay of professors and others," for the year ending June 30, 1879	52,526 00
Excess	600 00

NOTE.—This excess is occasioned by the enlargement of the laboratory, rendering necessary the addition of one mechanic in the department of physics and chemistry to repair instruments and construct simple apparatus.

PAY OF WATCHMEN AND OTHERS.

Captain of the watch and weigher, at \$2.50 per diem	912 50
Four watchmen, at \$2 per diem each	2,920 00
Foreman of the gas and steam-heating works of the Academy, at \$5 per diem	1,825 00

Estimates for the support of the United States Naval Academy, &c.—Continued.

Object of expenditure.	Estimated amount.
PAY OF WATCHMEN AND OTHERS—Continued.	
Ten attendants at gas and steam-heating works—one at \$3, one at \$2.50, and eight at \$2 per diem each	\$7,847 50
One steam-pipe fitter, at \$2 per diem	730 00
One foreman of joiners, one foreman of painters, and one foreman of masons, at \$3.50 per diem each	3,832 50
Two joiners, one painter, and one mason, at \$2.50 per diem each	3,650 00
One tinner, one gas-fitter, one blacksmith, at \$2.50 per diem each	2,737 50
Amount appropriated for the year ending June 30, 1879	24,455 00
Excess	24,180 75
NOTE.—This excess is occasioned by an increase of twenty-five cents per day to the "captain of the watch," who also performs the responsible duty of weigher; and an increase of about fifty cents per day to the steam-pipe fitter, whose services are constant and laborious.	
PAY OF MECHANICS AND OTHERS.	
One mechanic at workshop, at \$2.25 per diem	821 25
One master laborer to keep public grounds in order, at \$2.28 per diem	832 20
Fourteen laborers to assist in the same, three at \$2 and eleven at \$1.50 per diem each	8,212 50
One laborer to superintend quarters of cadets, public grounds, &c., at \$2 per diem	730 00
Six attendants: one at chapel, one at recitation hall, one at offices, one at library, one at paymaster's office, and one at store, at \$20 per month each	1,440 00
Twenty servants, to keep in order and attend to cadets' quarters, public buildings, &c., at \$20 per month each	4,800 00
Amount appropriated for the year ending June 30, 1879	16,835 95
	16,835 95
PAY IN DEPARTMENT OF STEAM-ENGINEERING.	
One master machinist, at \$3.50 per diem	1,277 50
One boiler-maker, at \$3.50 per diem	1,277 50
One pattern-maker, at \$3.50 per diem	1,277 50
Two machinists, at \$2.50 per diem	1,825 00
One blacksmith, at \$2.50 per diem	912 50
One molder, at \$2.50 per diem	912 50
Two laborers, at \$1.50 per diem each	1,095 00
Amount appropriated for the year ending June 30, 1879	8,377 50
	7,685 00
REPAIRS AND IMPROVEMENTS.	
For the necessary repairs of public buildings, pavements, wharves, and walls inclosing the grounds of the Naval Academy, for improvements of the same, and for furniture, fixtures, &c.	21,000 00
Appropriated for the year ending June 30, 1879	21,000 00
HEATING AND LIGHTING.	
For fuel for heating and lighting the Academy and school-ships	17,000 00
Appropriated for the year ending June 30, 1879	17,000 00
CONTINGENT EXPENSES.	
<i>Naval Academy.</i>	
For the purchase of books for the library	2,000 00
For stationery, blank-books, models, maps, &c., and for text-books for the use of instructors	2,000 00
For the expenses of the board of visitors	3,000 00
For the purchase of chemicals, apparatus, and instruments in the department of physics and chemistry, and for the repairs of the same	2,500 00
For the purchase of gas and steam machinery, steam pipe and fixtures, rent of buildings for the use of the Academy, freight, cartage, water, music, musical and astronomical instruments, uniforms for the bandmen, telegraphing, and for the feed and maintenance of teams, and for the current expenses and repairs of all kinds, and for incidental labor and expenses not applicable to any other appropriation	34,600 00
For stores in the department of steam-engineering	800 00
For materials for repairs in steam-machinery	1,000 00
Appropriated for the year ending June 30, 1879	45,900 00
Excess	45,500 00
	400 00
NOTE.—This increase for the expenses of the board of visitors is deemed necessary to cover the allowance of eight cents per mile prescribed by law for each member of the board, instead of actual and necessary traveling expenses, as heretofore.	

RECAPITULATION.

Pay of professors and others	\$53, 126 00
Pay of watchmen and others	24, 455 00
Pay of mechanics and others	16, 835 95
Pay in department of steam-engineering	8, 577 50
Repairs and improvements	21, 000 00
Heating and lighting	17, 000 00
Contingent expenses	45, 900 00
Amount estimated for	186, 894 45
Appropriated for year ending June 30, 1879	184, 707 70
Excess	2, 186 75

Respectfully submitted.

FOXHALL A. PARKER,
Superintendent.

Hon. R. W. THOMPSON,
Secretary of the Navy, Navy Department, Washington, D. C.

No. 3.—BUREAU OF EQUIPMENT AND RECRUITING.

NAVY DEPARTMENT,
BUREAU OF EQUIPMENT AND RECRUITING,
Washington, October 1, 1878.

SIR: I have the honor to submit herewith the annual report of the operations of this bureau for the past fiscal year, together with estimates for its support for the fiscal year ending June 30, 1880.

During the past fiscal year 63 vessels have been either wholly or partially equipped at the several navy-yards, at an expenditure of \$717,010.36, as follows: For labor, \$142,205.21; for material from stock on hand, \$487,675.81; for material purchased during the year, \$87,129.34.

Thirty-six thousand seven hundred and eighty tons of coal have been purchased at home and abroad for use of the Navy, under cognizance of this bureau, costing, including freight, \$288,222.09.

Two hundred and eighty thousand five hundred and thirty pounds of manila hemp have been purchased, costing \$23,857.54.

There has been expended under appropriation "Equipment of vessels, 1878," during the year, \$644,668.80, as follows: for labor in the several navy-yards, \$298,140; for coal, hemp, and other articles of equipment at home and abroad, \$346,528.80—leaving a balance on hand July 1, 1878, of \$225,331.20, from which is to be paid an outstanding indebtedness of \$90,000.

Under appropriation "Contingent equipment and recruiting, 1878," there has been expended \$51,452, leaving a balance on hand July 1, 1878, of \$13,542.

The bureau has made no contracts during the year, the supplies needed from time to time, as exigencies arose, having been procured by advertisement for proposals as the law directs.

GALLEYS.

All the galleys needed for the Navy have been manufactured at the Washington navy-yard, with Young's patent improvements. A new coffee-boiler has also been attached to the galleys for making coffee for the crew, to take the place of the old method of merely pouring hot water over the coffee in a mess-kettle, when very little of the strength or good of the coffee was obtained. The coffee made in this boiler is found to be superior in strength to that made in the mess-kettle, in the ratio of three to two. As recommended by the bureau, all single-deck vessels that have been recently equipped have had their galleys placed under

the topgallant forecastle, which has added much to the comfort of the crew in removing this great source of heat from the berth-deck.

FURNITURE FOR OFFICERS' MESSES.

The bureau has instituted boards at the several navy-yards with a view of establishing a standard of quality and price for the purchase of carpets, oilcloth, curtain material, &c., for use in the Navy.

New allowances of crockery, glass, and plated ware have been made for officers' messes and state-rooms, but in this connection the bureau recommends that a more durable kind of crockery and glassware be substituted for the expensive and fragile kind at present in use in the Navy.

WATCH, QUARTER, AND STATION BILLS.

A great need of the service, in order to have uniformity in the stationing of the crews of vessels and the exercises on board ship, has been supplied by this bureau during the past year, in a uniform watch, quarter, and station bill, applicable to all classes of vessels.

This has been printed, and will be furnished to all vessels placed in commission.

IRON-ROLLING MILL.

Since the date of my last report, an iron-rolling mill has been put in operation at the Washington navy-yard, at total cost of \$9,953.23.

This rolling-mill will be able to furnish all of the round, bar, and flat iron required for use at the several navy-yards, and will be an economy to the government, in utilizing all of the accumulated wrought-iron scraps at the several yards, and furnishing material at reduced cost.

WIRE BOARD.

The board for testing iron and steel wire for the manufacture of ropes and hawsers has completed its tests of all the various kinds of wire submitted. This work has been performed with the greatest care, and the board feels assured that its accuracy can be relied upon. The number and variety of specimens is large; the conclusions being deduced from the testing of some 2,320 specimens, comprising 17 varieties of steel, and 15 varieties of iron wire.

Since August 1 the board has been preparing to have those varieties of wire made into rope which from the results of the experiments were deemed most suitable for the different purposes required of wire rope, and then tested in the form, and as nearly as possible under the conditions, in which it is to be used, in order to judge whether the opinions formed from the tests (as a single wire) in regard to its value for a certain purpose will be sustained under the new conditions. This, with a few experiments relating to the most desirable pitch of strand per foot, will close the work of the board; and a final report will be made, which they hope will afford valuable information to others besides those especially interested.

ANCHORS.

The bureau has sought to find some kind of an anchor to do away with the large and crude one in present use. So far, the "Martin non-fouling anchor" (an English patent) seems to meet most of the requirements, but it is to be hoped that our American talent for invention will not let this matter remain dormant.

VENTILATION.

The subject of ventilation of our ships, so much needed, has been under the consideration of a board of officers, detailed by the department. All of the most modern and advanced plans for ventilation were carefully studied, and a plan for the ventilation of the Richmond was submitted.

This plan has been carried out in the Richmond, and consists of a series of pipes and conduits running to every part of the ship, and leading to an exhaust-fan, run by steam, or which can also be run by hand-power. One of the most important suggestions given by the board was the necessity of larger air-ports. The improved air-port, which has an air-space of just twice the old one, has been put in the Richmond and Shenandoah.

This latter improvement should be placed in every ship. This system of ventilation should be given a trial in the Richmond, and I am sure the health and efficiency of the crew will soon show that something of the kind was greatly needed.

CONDUCT REPORTS.

The "conduct reports" to this bureau continue to exhibit a marked improvement in the conduct of the enlisted men of the Navy.

On the 30th of June, 1877, there were 6,106 men afloat, distributed upon 61 vessels, upon whom, during the last quarter of that year, there were 1,366 punishments inflicted, or 22 per cent.; while on the 30th of June last there were 6,135 men afloat upon 59 different vessels, upon whom were inflicted 864 punishments, or 12 per cent., showing a decrease of 10 per cent.

As naturally following the *morale* of the enlisted men, I am pleased to state that the number of desertions during the last fiscal year was only 669; during the previous year 818, showing a decrease of 149. Two years since the report of desertions showed 1,203, making a decrease of nearly 50 per cent. in desertions.

HONORABLE DISCHARGES AND CONTINUOUS-SERVICE CERTIFICATES.

During the last fiscal year 210 men were recommended and received "honorable discharges," and three "medals of honor" were issued: Antonio Williams, seaman, for "courage and fidelity" displayed at the time of the loss of the Huron; William Anderson, coxswain, United States ship Plymouth, while at New York, for rescuing from drowning W. H. Moffat, first-class boy; and Henry Thompson, seaman, United States ship Pensacola, at Mare Island, for rescuing a man from drowning.

Three thousand and fifty-two continuous-service certificates have been issued to the Navy, 387 of which have been issued since last report. June 30, 1878, there were 863 continuous-service men in the Navy, who re-enlisted under said certificates and availed themselves of the benefits thereof.

TRAINING SYSTEM.

Five hundred and twenty-three boys have been enlisted during the past year under section 1418 Revised Statutes of the United States.

There are remaining on the training-ships 440, viz: On the Minnesota 272, on the Saratoga 121, and on the New Hampshire 47. Of this number, 70 have been detailed for the Richmond and 71 for the Quinnebang.

Four hundred and forty-five boys are serving on cruising vessels, having passed into the general service, viz: Alaska, 28; Adams, 60; Con-

stellation, 41; Essex, 63; Enterprise, 16; Hartford, 68; Marion, 17; Monongahela, 41; Portsmouth, 33; Plymouth, 17; Trenton, 41; Tallapoosa, 10; Wyoming, 10. Twenty-six of the above number are under training for the engineers' force of the Navy, and are distributed as follows: Alaska, 8; Tallapoosa, 10; Wyoming, 8.

To show that these boys are doing their duty, and are advancing the tone and *morale* of the service, I append extracts from reports of commanding officers, in reply to a letter of this bureau, dated September 11, 1878, as evidence of their good conduct and efficiency.

Captain Luce, of the Minnesota, says:

I have the honor to state that the general character of the boys is excellent, and in the great majority of cases their aptitude for the naval service is all that could be desired.

By reports received from vessels on foreign stations, to which drafts of these boys have been sent, it is found that they fulfill every reasonable expectation, and give promise of future usefulness to the service.

It needs but the placing of the training system on a permanent basis to insure in a very few years the manning of our ships by native-born seamen, and the benefits of the system to the national marine cannot but react favorably on the mercantile marine.

Captain Greer, of the Constellation, says:

I observed a spirit of pride to improve prevailed among them. They were instructed in steering and in a knowledge of the lead and compass; also, knotting and splicing. In addition, they had much experience aloft and in assisting in the working of the ship. A large proportion showed a marked aptitude for the service.

It is with pride that I bear testimony to their promise of usefulness, and of amply repaying the government for the pains and expense incurred in preparing them for the Navy. I would prefer a detail of the enlisted boys to the landsmen and many of the ordinary seamen, as formerly allowed.

Captain Fitzhugh, of the Monongahela, says:

The conduct of the boys on board this vessel will compare with that of the same number attending the public schools in any community on shore, if not superior, considering the temptations that are thrown in their way and absence of parental control. Few or none of the offenses committed by them are of a vicious nature, generally being such as would be expected among boys of their age. Drunkenness is unusual. They are, as a general thing, equal to the average ordinary seaman.

Commander Watson, of the Wyoming, says:

The general conduct of the boys on board the Wyoming, in training for the engineers' force, has been most excellent, and their aptitude for the naval service good. They are intelligent, attentive to instruction, and are interested in their specialty.

Lieutenant-Commander Evans, of the Saratoga, says:

I consider the general character of the boys on board this vessel as excellent. In arriving at this conclusion, I compared them morally, mentally, and physically with the ordinary seamen and landsmen on board other vessels in which I have served. As regards their aptitude for the service, I am entirely satisfied that a very large percentage of them will be rated as seamen and ordinary seamen as soon as they have been long enough in the ships to which they are transferred to master their peculiarities of rig, &c. I am confident that if the system inaugurated in these training-ships be faithfully followed in the service, we will, in a few years, have an excellent set of well-bodied, well-educated American seamen.

Of the ten boys on board the Tallapoosa under training for the engineers' force, Lieutenant McRitchie says:

These boys have been brought to a high state of perfection in their duties in the fire and engine rooms. Their behavior is good, and in my opinion they are well adapted for the naval service. The placing of boys on this vessel, so actively employed, and the fact of visiting so many navy-yards, where they have the opportunity of seeing so many types of engines, will, I am sure, result in great good to them, and will be a benefit to the service in years to come.

If it is the intention of the department to continue the present system of training-ships, with the aid of legislation by Congress, I would respectfully recommend that the sailing-vessels Constitution, Saratoga,

and Portsmouth be retained for that purpose. These vessels are among the last of our sailing-vessels, and are peculiarly adapted to the purpose of training the boys in the handling of sails and bringing them to a knowledge of seamanship. I would recommend that during the winter the Constitution be stationed at New York, the Portsmouth at Philadelphia, and the Saratoga at Baltimore, or at such other ports as the department may direct, and that during the summer these vessels should combine for a cruise and exercise in our own waters, under the command of the senior officer.

RECEIVING-SHIPS.

The system inaugurated by the department of having certain of our ships in reserve for sea-service in preference to old hulks, as rendezvous for recruits at the naval stations, should be extended. As the Wabash is at Boston, the Colorado at New York, and the Franklin at Norfolk, I would recommend that the Minnesota be stationed at League Island as a receiving-ship and marine barracks.

CONCLUSION.

As this report will close the administration of the present chief of bureau, he takes the occasion to express the gratification he has felt in observing the gradual but marked improvement in the moral and professional character of the enlisted men of the Navy.

Within the last three years, desertion, that cancer which in the course of time will destroy the life of any military body, has been reduced fifty per cent., and punishments have indicated, by their diminution, a steady purpose on the part of the men to obey the law.

There is no more reason why a sailor should run away from his ship than a blacksmith from his anvil. Remove the cause first; punish the act afterward. There is a field of usefulness here to any officer in charge of this bureau, or in command of any of the recruiting stations, who is willing to step outside of the conservatism of rank and take an interest in the welfare of the "common sailor."

In Japan, the youngest in the family of civilized nations, the soldier is regularly taught in schools established by the government. There, at least, the fact seems to be recognized that the *personnel* of a military body to be efficient must be intelligent.

In this connection the chief of the bureau commends to his successor the apprentice boys of the Navy; these wards of the government, who come from the rank and file of the country, are the future guardians of the nation's honor among the other nations of the earth. Say what you will, the efficiency of the Navy depends upon its officers and men and not upon its ships and guns. The latter change with every fashion or whim of the day; the former remain the same, and will as long as human nature endures.

The honorable Secretary of the Navy has always sustained the efforts of his subordinates in the promotion of the welfare of the seaman; unfortunately, Congress has not always heeded his recommendations; but after all, the steady growth of improvement must depend upon the officers of the Navy, who, by virtue of their position, are the teachers of the men.

Very respectfully, your obedient servant,

R. W. SHUFELDT,
Chief of Bureau.

Hon. R. W. THOMPSON,
Secretary of the Navy, Washington, D. C.

*Estimates of appropriations required for the service of the fiscal year ending June 30, 1880,
by the Bureau of Equipment and Recruiting.*

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Amount appropriated for the current fiscal year ending June 30, 1879.
SALARIES, BUREAU OF EQUIPMENT AND RECRUITING.		
Chief clerk (per Rev. Stat., p. 69, sec. 416, and per act June 19, 1878, 20 Stat. at L., p. 197, sec. 1)	\$1,800 00	
One clerk of class four (per act June 19, 1878, 20 Stat. at L., p. 197, sec. 1)	1,800 00	
One clerk of class three (per act June 19, 1878, 20 Stat. at L., p. 197, sec. 1)	1,600 00	
Two clerks of class two (per act June 19, 1878, 20 Stat. at L., p. 197, sec. 1)	2,800 00	
Two clerks of class one (per act June 19, 1878, 20 Stat. at L., p. 197, sec. 1)	2,400 00	
One assistant messenger (per act June 19, 1878, 20 Stat. at L., p. 197, sec. 1)	720 00	
One laborer (per act June 19, 1878, 20 Stat. at L., p. 197, sec. 1)	660 00	
Total	11,780 00	\$11,780 00
CONTINGENT, BUREAU OF EQUIPMENT AND RECRUITING.		
For stationery, books, and miscellaneous items (per act June 19, 1878, 20 Stat. at L., p. 197, sec. 1)	500 00	500 00
EQUIPMENT OF VESSELS.		
Coal, for steamers' and ships' use, including expenses of transportation, storage, and labor; hemp, wire, and other materials for the manufacture of rope; hides, cordage, canvas, leather; iron for the manufacture of cables, anchors, galleys, and chains; furniture, wood, bake-ovens, and cooking-stoves, boat-detaching apparatus, life-rafts, and hose; heating apparatus for receiving-ships; and for pay of labor in equipping vessels and manufacture of equipment articles in the several navy-yards (per Rev. Stat., p. 738, secs. 3709, 3747; appropriated, 20 Stat. at L., p. 52, sec. 1)	800,000 00	800,000 00
CONTINGENT, BUREAU OF EQUIPMENT AND RECRUITING.		
Expenses of recruiting and fitting up receiving-ships; freight and transportation of stores; transportation of enlisted men; printing, advertising, telegraphing, books and models, stationery, express charges; internal alterations, fixtures and appliances in equipment-buildings at the several navy-yards; foreign postage, car-tickets, ferrriage, ice; apprehension of deserters; assistance to vessels in distress; continuous-service certificates and good-conduct badges for enlisted men, including purchase of school-books for training-ships (per Rev. Stat., p. 726, sec. 3686; appropriation, 20 Stat. at L., p. 52, sec. 1)	50,000 00	50,000 00
CIVIL ESTABLISHMENT, BUREAU OF EQUIPMENT AND RECRUITING.		
Appropriated (19 Stat. at L., p. 386, sec. 1):		
Navy-yard, Kittery, one clerk	1,300 00	
Navy-yard, Boston:		
One superintendent of rope-walk	1,800 00	
One clerk	1,400 00	
One clerk	1,300 00	
One writer	1,017 25	
Navy-yard, New York:		
One clerk	1,400 00	
One clerk	1,300 00	
Navy-yard, League Island, one clerk	1,300 00	
Navy-yard, Washington:		
One clerk	1,400 00	
One clerk	1,300 00	
One writer	1,017 25	
Navy-yard, Norfolk, one clerk	1,300 00	
Navy-yard, Pensacola, one writer	1,017 25	
Navy-yard, Mare Island, one clerk	1,400 00	
Total	18,251 75	
NOTE.—\$150,000 was appropriated in gross for the civil establishment at all the navy-yards for the fiscal year 1879.		

No. 4.—BUREAU OF ORDNANCE.

BUREAU OF ORDNANCE, NAVY DEPARTMENT,
Washington City, October 10, 1878.

SIR: I have the honor to submit the annual report of this bureau, with accompanying detailed estimates for the fiscal year ending June 30, 1880.

ESTIMATES.

1. Labor, tools, material, and fuel used in fitting ships for service, and preservation of ordnance and ordnance-stores.....	\$175,000 00
2. Repairs to buildings, magazines, wharves, gun-parks, tugs, lighters, and boats	50,000 00
3. Torpedo service.....	45,000 00
4. Miscellaneous items, freight, telegrams, postage, advertising, &c.....	3,000 00
5. Civil establishment at navy-yards.....	11,886 25
Total	284,886 25

These estimates conform to the appropriations made for the fiscal year of 1878-79, simply based upon the necessities of the current service of fitting ships for sea, and do not admit of any progress being made in supplying new and improved ordnance.

CANNON.

Great progress has recently been made abroad in developing the power of artillery, rendering the attack far superior to the defense, and detracting very much from the value of armored ships, since any ship now built or building can be pierced by guns of the moderate caliber of 12 inches. All these improvements inure to our benefit, as we have our whole artillery to reconstruct.

The bureau is prepared, whenever an appropriation shall be made, to supply the designs for guns quite equal to any of which we have notice.

All these experiments appear to confirm the views of the chief of bureau, that the rifle-cannon adopted should be a breech-loader, and the latest and most successful experiments have been with guns fitted with the screw-breech, or French plan, which has commanded the preference of the chief of this bureau.

GUNPOWDER.

A large part of the increased effects with the new guns is due to the improved powder adopted. From the published results, this progressive powder does not appear to be superior to the United States standard navy powder which was adopted in 1874, after a careful series of experiments made by the late Commander J. D. Marvin; and the bureau feels quite certain that it can reproduce any desired result.

The stock of powder has fallen very low, and a special appropriation should be made for the purchase of 4,000 barrels.

The new powder cannot be manufactured in haste, nor to advantage in the winter season of the year. Time is therefore required, and a stock should be kept on hand to meet emergencies.

MACHINE GUNS.

Several of these have been presented for trial, but possess no particular value over those already in use.

Improvements have been made in the Gatling and Lowell battery guns, both of which are in use in the Navy; but not sufficiently marked as to necessitate any change of those we have.

SMALL-ARMS.

The Army board on small-arms has made a favorable report on and recommended for adoption the Hotchkiss magazine gun.

While a magazine gun is, perhaps, more required for the Navy than for the Army, it is desirable that we should await the issue of this arm to troops and its actual test in service before adopting it, as the change of caliber would throw out of service all our machine guns as well as the small-arm in use. Therefore, while it is very desirable we should adopt the same caliber as the Army, and also that we should have a magazine gun, I do not think it expedient to make any immediate change.

TORPEDOES.

The torpedo station, under command of Capt. K. R. Breese, has graduated the usual number of officers, and with the very limited means at its command practically investigated the subject of electric lighting as applicable to the defense against torpedoes, the experiments in countermining, and the clearing away of torpedoes.

Last year, however, was quite barren in torpedo results. Notwithstanding the war in the East the offensive developments have been very small.

Our distinguished citizen and inventor, Capt. John Ericsson, has been for some months engaged in the construction of a vessel which bids fair to be a new step in advance in offensive warfare. The vessel is now near completion, and I am expecting very shortly a trial trip will be made and she will prove a great success; a full report of which will be submitted.

HOTCHKISS REVOLVER CANNON.

The Hotchkiss revolver cannon ordered by the bureau some two years ago has recently been received. The special advantages of this gun are, that while it fires a shell of a pound weight with a high velocity, it is pointed from the shoulder, thus enabling a veritable field-piece to be fired with all the accuracy of, and a much greater rapidity than, the rifle small-arm. Its caliber is 37 millimeters ($1\frac{1}{2}$ inches); has five barrels; total weight of 200 kilograms (440 pounds); shell of one pound, which bursts into from fifteen to nineteen pieces; has an accuracy at 3,000 yards equal to that of the ordinary rifle cannon; it can be fired at the rate of fifty shots per minute, and, pointing with care, from thirty to forty shots. It penetrates at a thousand yards any of the modern torpedo boats, such as the Thornycroft's; after passing through the side the fragments have sufficient force to penetrate the water-tight bulkheads. The above data are taken from official reports.

It would appear, then, that, we have in this arm an absolute defense against surface torpedo boats, and, except in circumstances of fogs or darkness, no surface torpedo boat can approach within 1,000 yards of a vessel provided with these guns. This gun would also be extremely valuable for the purpose of firing into the open ports of ships, or for clearing the parapets of barbette guns.

The Chief of Bureau, therefore, recommends an appropriation for the purchase of a number for actual trial in service.

The bureau appends certain papers for the information of the service.

I am, very respectfully, your obedient servant,

WILLIAM N. JEFFERS,

Commodore, Chief of Bureau.

HON. R. W. THOMPSON,
Secretary of the Navy.

Estimates of appropriations required for the service of the fiscal year ending June 30, 1880, by the Bureau of Ordnance, Navy Department.

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Amount appropriated for the current fiscal year ending June 30, 1879.
SALARIES.		
Chief clerk (Rev. Stat., p. 70, sec. 416; act June 19, 1878, p. 197, sec. 1).....	\$1, 800 00	.....
Draughtsman (Rev. Stat., p. 70, sec. 416; act June 19, 1878, p. 197, sec. 1).....	1, 800 00	.....
One clerk of class three (Rev. Stat., p. 26, sec. 167; act June 19, 1878, p. 197, sec. 1).....	1, 600 00	.....
One clerk of class two (Rev. Stat., p. 26, sec. 167; act June 19, 1878, p. 197, sec. 1).....	1, 400 00	.....
One assistant messenger; act June 19, 1878, p. 197, sec. 1.....	720 00	.....
One laborer; act June 19, 1878, p. 197, sec. 1.....	880 00	.....
	7, 980 00	\$7, 980 00
CONTINGENT.		
Stationery, books, and miscellaneous items (appropriated).....	400 00	400 00
ORDNANCE AND ORDNANCE STORES.		
Fuel, tools, and material of all kinds necessary in carrying on the current daily work of mechanical branches of the ordnance department of the several navy-yards, magazines, and stations (appropriated act May 4, 1878).....	50, 000 00	.....
Labor at the several navy-yards, magazines, and stations, in fitting ships for sea, and in preserving ordnance material (appropriated act May 4, 1878).....	125, 000 00	.....
Necessary repairs to ordnance buildings, gun-parks, magazines, boats, lighters, wharves, machinery, and other necessities of the like character (appropriated act May 4, 1878).....	50, 000 00	.....
Miscellaneous items, to wit: Freight to foreign and home stations; advertising, and auctioneer's fees; cartage, and express charges; repairs to fire-engines, gas and water-pipes; gas and water-tax at magazines; toll, ferrisage, foreign postage, telegrams, &c. (appropriated act May 4, 1878).....	3, 000 00	.....
	228, 000 00	228, 000 00
CIVIL ESTABLISHMENT.		
At navy-yard, Portsmouth, N. H.: One clerk (appropriated act May 4, 1878).....	1, 300 00	.....
At navy-yard, Boston, Mass.: One clerk (appropriated act May 4, 1878).....	1, 400 00	.....
At navy-yard, Brooklyn, N. Y.: One clerk (appropriated act May 4, 1878)..... One writer (appropriated act May 4, 1878).....	1, 400 00 1, 017 25	..........
At navy-yard, League Island, Pa.: One writer (appropriated act May 4, 1878).....	1, 017 25	.....
At navy-yard, Washington, D. C.: One clerk (appropriated act May 4, 1878)..... One writer (appropriated act May 4, 1878).....	1, 400 00 1, 017 25	..........
At navy-yard, Norfolk, Va.: One clerk (appropriated act May 4, 1878).....	1, 300 00	.....
At navy-yard, Pensacola, Fla.: One writer (appropriated act May 4, 1878).....	1, 017 25	.....
At navy-yard, Mare Island, Cal.: One writer (appropriated act May 4, 1878).....	1, 017 25	.....
	11, 886 25	11, 886 25
NOTE.—\$150,000 was appropriated in gross for the civil establishment at all the navy-yards for the fiscal year 1879.		
TORPEDO CORPS.		
Labor (appropriated act May 4, 1878).....	15, 000 00	.....
Material (appropriated act May 4, 1878).....	10, 000 00	.....
Freight and express charges (appropriated act May 4, 1878).....	500 00	.....
Repairs to grounds, buildings, wharves, boats, &c., (appropriated act May 4, 1878).....	5, 000 00	.....
Instruction, and general torpedo experiments (appropriated act May 4, 1878).....	14, 500 00	.....
	45, 000 00	45, 000 00

Respectfully submitted.

WILLIAM N. JEFFERS,
Commodore, Chief of Bureau.

Manufactures and preparations at the various navy-yards for the year ending June 30, 1878.

ARTICLES UNDER PROPORTION TO EACH GUN.

- 13 8-inch M. L. R. carriages, altered from XI inch.
- 10 sets M. L. R. sights, complete.
- 18 M. L. R. central-sight bars.
- 23 M. L. R. side-sight bars.
- 24 M. L. R. side-sight boxes.
- 25 M. L. R. rim-base sights.
- 25 M. L. R. sight thumb-screws.
- 100 M. L. R. sight side screws.
- 3 M. L. R. carriage-extension pieces.
- 12 M. L. R. shell-loaders.
- 1 M. L. R. transporting axle and trucks.
- 20 M. L. R. trunnion-eccentrics.
- 22 M. L. R. rammers.
- 19 M. L. R. shell-extractors.
- 12 M. L. R. pivot-bolts.
- 1 set M. L. R. gun-gripes.
- 57 M. L. R. gun-tackles.
- 12 M. L. R. sponges, woolen.
- 18 M. L. R. sponge-covers, woolen.
- 14 M. L. R. sponge-caps, canvas.
- 6 M. L. R. muzzle-bags.
- 5 M. L. R. passing-boxes.
- 106 M. L. R. rifle canister.
- 5 M. L. R. vent impression takers.
- 5 M. L. R. sponges, bristle.
- 1 80-pounder B. L. R. top-carriage.
- 1 80-pounder B. L. R. rifle plug.
- 1 80-pounder B. L. R. circulating-pump.
- 50 80-pounder B. L. R. canister.
- 1 80-pounder B. L. R. face-plate.
- 2 80-pounder B. L. R. Broadwell rings.
- 2 XI-inch breechings.
- 4 XI-inch preventer breechings.
- 3 XI-inch woolen sponges.
- 14 XI-inch woolen sponge-covers.
- 3 XI-inch shell-bearers.
- 4 XI-inch muzzle-bags.
- 1 set XI-inch gun-gripes.
- 3 XI-inch tompons and wads.
- 20 XI-inch shell-boxes.
- 1 XI-inch scraper.
- 11 XI-inch rammers.
- 1 XI-inch vent impression taker.
- 10 XI-inch trunnion-sleeves.
- 1 XV-inch bristle sponge.
- 3 XV-inch woolen sponge-covers.
- 1 XV-inch ladle.
- 1 XV-inch scraper for bore.
- 1 XV-inch scraper for chamber.
- 1 XV-inch sectional rammer.
- 32 IX-inch breechings.
- 19 IX-inch tackles.
- 21 IX-inch woolen sponges.
- 64 IX-inch woolen sponge-covers.
- 877 IX-inch shell-boxes.
- 5 IX-inch gun-scrapers.
- 13 IX-inch passing-boxes.
- 16 IX-inch locks.
- 2 IX-inch ladles.
- 1 IX-inch elevating-screw.
- 45 IX-inch tompons, wads, and lariards.
- 50 IX-inch carriage axle-washers.
- 12 8-inch woolen sponge-covers.
- 3 100-pounder woolen sponges.
- 3 100-pounder rammers.
- 3 100-pounder passing-boxes.

- 7 60-pounder iron carriages.
- 10 60-pounder iron directing-bars.
- 1 60-pounder wood carriage.
- 1 60-pounder breeching-shackle.
- 1 60-pounder breeching-shackle plate.
- 12 60-pounder pivot-bolts.
- 5 60-pounder breechings.
- 2 60-pounder gun-gripes.
- 2 60-pounder tompons and wads.
- 14 60-pounder gun-tackles.
- 6 60-pounder bristle sponges.
- 2 60-pounder woolen sponges.
- 18 60-pounder woolen sponge-covers.
- 21 60-pounder sponge-caps, canvas.
- 6 60-pounder muzzle-bags.
- 2 60-pounder sights.
- 2 60-pounder vent impression takers.
- 2 60-pounder locks.
- 2 60-pounder scrapers.
- 200 60-pounder shell-boxes.
- 6 60-pounder trucks.
- 13 60-pounder train-ropes.
- 4 20-pounder B. L. R.
- 6 20-pounder B. L. R. carriages.
- 11 20-pounder B. L. R. carriage directing-bars.
- 20 20-pounder B. L. R. tackles.
- 4 20-pounder B. L. R. breechings.
- 10 20-pounder B. L. R. breech-sights.
- 13 20-pounder B. L. R. elevating-screws.
- 20 20-pounder B. L. R. elevating-screw pins.
- 27 20-pounder B. L. R. collar guide-bolts.
- 14 20-pounder B. L. R. collar-latches.
- 43 20-pounder B. L. R. wrenches.
- 2 20-pounder B. L. R. thumb-latches.
- 5 20-pounder B. L. R. trunnion-sights.
- 22 20-pounder B. L. R. Broadwell rings.
- 11 20-pounder B. L. R. Broadwell ring-extractors.
- 14 20-pounder B. L. R. metal blocks.
- 180 20-pounder B. L. R. sabots.
- 20 20-pounder B. L. R. pivot-bolts.
- 6 20-pounder B. L. R. bristle sponges.
- 25 20-pounder B. L. R. woolen sponges.
- 10 20-pounder B. L. R. woolen sponge-covers.
- 3 20-pounder B. L. R. muzzle-bags.
- 292 20-pounder B. L. R. shell.
- 21 20-pounder B. L. R. shell-boxes.
- 1 20-pounder B. L. R. rammer.
- 14 20-pounder B. L. R. "dummy" shot.
- 9,650 cannon-primers.
- 5,492 cannon-primers, friction-quill.
- 91 laniards, with runners.
- 65 fuse-pickers.
- 31 fire-buckets.
- 143 fire-bucket laniards.
- 304 port-laniards.
- 42 port-bridles.
- 13 shell-whips.
- 4 powder-flasks.
- 50 thumb-stalls.
- 29 handspikes, roller.
- 20 handspikes, ordinary.
- 26 primer-boxes.
- 4 division-tubs.
- 4 fire-tubs.
- 132 heavers.
- 2 fuse-wrenches, No. 1.

HOWITZER, EQUIPMENTS, ETC,

- 1 3-inch B. L. R., bronze.
- 5 3-inch B. L. R., steel.

- 4 3-inch B. L. R. field-carriages.
- 22 3-inch B. L. R. field-carriage wheels.
- 24 3-inch B. L. R. catch-springs and washer.
- 12 3-inch B. L. R. hand-gripe screws.
- 509 3-inch B. L. R. shells.
- 59 3-inch B. L. R. shrapnel.
- 628 3-inch B. L. R. shell-sabots.
- 20 3-inch B. L. R. shell-boxes.
- 8 3-inch B. L. R. rim-base sights.
- 28 3-inch B. L. R. breech-sights.
- 210 3-inch B. L. R. charges.
- 12 3-inch B. L. R. "dummy" shot and carriages.
- 14 sets 3-inch B. L. R. cartridge-bag patterns.
- 6 3-inch B. L. R. caisson-boxes.
- 6 3-inch B. L. R. rammers and sponges.
- 286 3-inch B. L. R. shell-plugs.
- 3 3-inch B. L. R. tompions and wads.
- 7 3-inch B. L. R. haversacks.
- 3 3-inch B. L. R. sponge-caps.
- 6 3-inch B. L. R. drag-ropes.
- 400 3-inch B. L. R. cartridge-bags.
- 20 3-inch B. L. R. Broadwell rings.
- 7 3-inch B. L. R. Broadwell ring-extractors.
- 6 3-inch B. L. R. collar-latches.
- 6 3-inch B. L. R. thumb-latches.
- 14 3-inch B. L. R. elevating-screw pins.
- 12 3-inch B. L. R. wrenches.
- 12 sets 3-inch B. L. R. caisson-box fittings.
- 6 3-inch B. L. R. sponge-buckets.
- 10 boxes fuse cutters and clamps.
- 3 12-pounder boat-carriages.
- 2 12-pounder field-carriages.
- 8 12-pounder caisson-boxes.
- 37 12-pounder ammunition-boxes.
- 48 12-pounder passing-boxes.
- 7 sets 12-pounder boat-equipments.
- 4 12-pounder tompions and wads.
- 4 12-pounder ladles and worms.
- 12 12-pounder rammers and sponges.
- 25 12-pounder sponge-covers.
- 4 12-pounder sponge-caps.
- 4 12-pounder spare-article boxes.
- 1 12-pounder box for boat-irons.
- 4 wheel-chocks.
- 23 wheel-shoes.
- 12 12-pounder drag-ropes.
- 600 12-pounder cartridge-bag springs.
- 1, 204 12-pounder cartridge-bags.
- 10 12-pounder boat-clamps.
- 1 set 12-pounder iron-work for boats.

SMALL-ARMS.

- 32 arm-chests.
- 32 battle-axes.
- 12 boat-chests.
- 310 cutlass-frogs.
- 41 battle-ax frogs.
- 126 pistol-frogs.
- 43 revolver-frogs.
- 669 waist-belts.
- 145 pistol-cartridge boxes.
- 30 revolver-cartridges boxes.
- 172 rifle-cartridge boxes.
- 41 pike-guards.
- 72 single-sticks.
- 7 target-plates.
- 18 armorer's tools.
- 7 armorer's tool-chests.

MAGAZINE STORES.

- 300 saluting-charges.
- 5 powder-whips.
- 11 magazine-screens.
- 31 magazine-dresses.
- 162 60-pounder cartridge-bags.
- 350 32-pounder cartridge-bags.
- 112 12-pounder cartridge-bags.
- 1,120 20-pounder cartridge-bags, B. L. R.
- 200 20-pounder cartridge-bags.
- 400 8-inch M. L. R. cartridge-bags.
- 7 cans, copper-bound.
- 1 bucket, copper-bound.
- 1 60-pounder cartridge-bag former.
- 4 8-inch M. L. R. rifle cartridge-bag formers.
- 13 20-pounder cartridge-bag formers.
- 50 35-pound charges.
- 50 20-pound charges.
- 20 prs. magazine-shoes.
- 7 magazine-lanterns.
- 24 magazine-candlestick springs.
- 1,051 adapting-rings.
- 1 shell-filling block.
- 1 powder-flag.
- 524 fuse-plugs.
- 462 Boxer fuses.
- 2,165 Bormann fuses.
- 441 Boxer fuse-igniters.
- 358 Boxer fuse-stocks.
- 1,148 Bormann fuse-stocks.
- 1,500 5-inch fuses for 8-inch M. L. R., N. M. S.
- 3,330 5-inch fuses for spherical shell, N. M. S.

TORPEDOES.

- 10 sets torpedoes, complete.
- 18 bridle-wires.
- 750 feet ash scotchman.
- 10 torpedo-tackles.
- 20 torpedo-guys.
- 6 sets torpedo-gear.
- 2 copper rings for D. E. machine.
- 6 torpedo-cases, tin.
- 6 torpedo-floats, tin.
- Experimental work of all kinds, viz: Explosives; gun-cotton; dynamite; picric acid; nitro-glycerine; distilling acid; McLean's steering-gear; Converse's steering-gear; circuit-closers; wire terminals and connections; Howell torpedo; Lay torpedo; Ericsson torpedo; fish-torpedo; experimental torpedo; telephone; dynamometer; galvanometer; Newell's testing and firing plate; battery for inside contact torpedo; electric speed-indicator; electric-battery cells; electric-primer connections; electric lamps; Davis torpedo-socket.
- Repairs to deteriorated stores on hand.
- Repairs to tools, &c.
- Repairs to buildings and wharves.

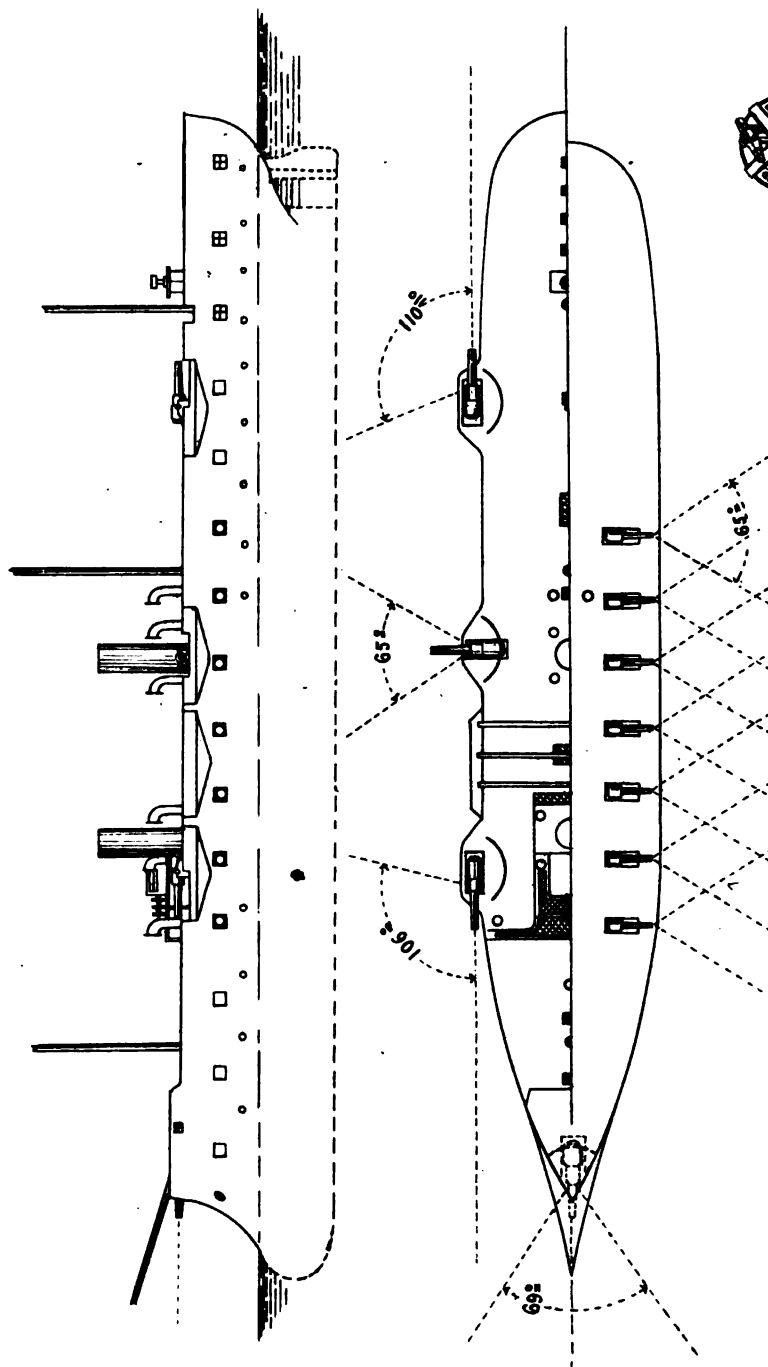
MISCELLANEOUS.

- 22 60-pounder pivot-sockets.
- 4 set 60-pounder-carriage castings.
- 6 60-pounder friction-chocks.
- 16 60-pounder breeching-thimbles.
- 8 60-pounder clevis-bolts.
- 4 20-pounder deck-sockets.
- 20 20-pounder breeching-thimbles.
- 1,293 deck-circle screws.
- 4 sets deck-circles.
- 76 arm-chest hinges.
- 12 arm-chest hasps.

30 arm-chest staples.
 53 handspike-shoes.
 4 training-eyebolts.
 12 powder-scuttle funnels.
 20 shrapnel bouchings.
 2 pressure-gauges.
 1 pressure-gauge box.
 1 pressure-gauge wrench.
 253 pressure-gauge disks.
 1 60-pounder templet.
 2,445 pounds bloom-iron.
 16 shot-plugs.
 42 grate-bars.
 362 tallies.
 1 hatch-cover.
 1 wooden powder-boat, repaired.
 24 pairs can-hooks.
 2 gun-slugs.
 1 stationary packing-box.
 39 rough packing-boxes.
 6 fuse-taps.
 2 fuse-plates.
 2 fuse-tap wrenches.
 1 drill.
 2 recoil-indicators.
 13 target-frames.
 1 pendulum.
 32 shell-stand braces.
 56 copper bolts.
 12 loop-studs for friction-primer.
 1 loop-stud for die-plate.
 709 hooks for gun implements.
 100 hooks for rammers and sponges.
 4 hooks for transporting-trucks.
 285 hooks for fire-buckets.
 157 hooks for lanterns.
 130 hooks for powder-chutes.
 15 hooks for handspikes.
 2 brackets for target-plate.
 94 sets brackets for pistols.
 100 sets brackets for rifles.
 42 buttons for pistol-frogs.
 100 tub-cleats.
 Repairs to stores on hand.
 Repairs to tools.
 Repairs to buildings, wharves, shot-beds, gun-skids, &c.

List of vessels for which work has been performed for the year ending June 30, 1878.

Alaska.	Huron.	Monocacy.	Saratoga.
Alarm.	Hartford.	Monongahela.	Saugus.
Ajax.	Jason.	New Hampshire.	Shenandoah.
Ashuelot.	Juniata.	Omaha.	Supply.
Congress.	Kansas.	Ossipee.	Swatara.
Constitution.	Kearsarge.	Portsmouth.	Ticonderoga.
Colorado.	Lancaster.	Passaic.	Tuscarora.
Constellation.	Lehigh.	Pensacola.	Wabash.
Canandaigua.	Lackawanna.	Plymouth.	Wachusett.
Dictator.	Mahopac.	Powhatan.	Wyandotte.
Enterprise.	Manhattan.	Quinnebang.	Wyoming.
Frolic.	Michigan.	Richmond.	Yantic.
Guard.	Minnesota.		



DUQUESNE. — TOURVILLE.



TYPES OF UNARMORED SHIPS IN THE FRENCH FLEET, AS SHOWN BY MODELS AT THE EXPOSITION AND IN THE LOUVRE.

PARIS, FRANCE, *November 1, 1878.*

SIR: Having reviewed the peculiarities and condition of the French iron-clad fleet as represented by models at the Louvre and Exposition, a report would scarcely be complete that failed to detail at least as thoroughly the types and strength of the unarmored fleet.

In the types of unarmored ships, as in their iron-clads, I find the same wide departure from English styles of construction.

The French having shown their partiality for barbette turrets in the iron-clads, carry the same principle out in their newest types of fast cruisers. Where the English aim at a moderate bow-fire, the French strive for the greatest possible; and where the English sacrifice stern-fire almost completely, the French secure moderate power in stern-chasers, with a tendency to even make it equal to bow-fire. Where the English have provided for the discharge of Whitehead torpedoes, the French apparently use exclusively a towing torpedo. The straight or the old-fashioned bows of the English are hardly ever found with the French, where the long ram-bow is the rule.

Finally, the sailing qualities of French ships are never sacrificed, except it be in the one condition that in no type do they hoist their propellers.

According to the programme of the fleet decided upon in 1872, the unarmored ships of the French navy were classed as follows:

8 fast frigates (first-class cruisers).

8 fast corvettes (second-class cruisers).

18 first-class avisos.

18 second-class avisos.

10 transport avisos.

32 gunboats.

The models of most of the types were at the Exposition, and I found others at the Louvre, which I believe make the list entire, with the exception of two types: the first-class cruiser, type Venus, and the launch-gunboat, type Epee. If there are any others, they belong to Crimean war types, and are probably near the end of their service.

In examining the models, I have carefully studied French views, as expressed in the writings of Baron Grivel, Admiral Paris, M. Dislere, M. Marchal, and the official marine publications. Unfortunately, I could not study at the same time English models, which, had I been able to do, would no doubt have made a more correct judgment possible. The only English models at the Exposition were the Opal, Medina, and gunboats built for foreign navies—Constitucion, Republica, Parana, and Uruguay.

I have at the close of the report included as a French type the Spanish gunboat Jorge Juan, built by the Compagnie des Forges et Chantiers de la Mediterranée.

In making drawings, I had the same difficulty to contend with as before, in not being allowed to sketch on the spot.

The general form is, however, as correct in all cases as my slight skill in drawing and lack of facilities would permit.

FIRST-CLASS CRUISER.

Type: Duquesne, Tourville.

Length between perpendiculars.....	327 feet.
Outside beam at water	50 feet.
Mean load-draught.....	22 feet 7 inches.

Displacement	5,340 tons.
Area of immersed midship section	796.5 square feet.
Power developed by engine	7,340 horse-power.
Maximum speed	16.93 knots.
Coal-supply	648 tons.
Distance attainable at 10 knots	4,300 miles.
Sail-surface	20,444 square feet.
Proportion of sail surface to midship section	25 to 1
Number of crew	450 men.
Spar-deck battery, 7 $\frac{1}{2}$ -inch caliber	7
Gun-deck battery, 5 $\frac{1}{2}$ -inch caliber	14
Fire directly ahead :	
Number of guns	3
Weight of metal thrown	412.5 pounds shell.
Effective range against unarmored ships	8,000 yards.
Fire abeam :	
Number of guns	10
Weight of metal thrown	818.5 pounds shell.
Power of penetration, at 1,000 yards, for 3 battering shell	9 inches.
Fire astern :	
Number of guns	2
Weight of metal thrown	330 pounds shell.
Power of penetration at 1,000 yards	9 inches.
Height of battery above water-line {	Spar-deck
	Gun-deck

Two ships of this type, Duquesne and Tourville, are now afloat, and as yet, I believe, no steps have been taken to lay down another, although, as far as I can learn, there have been no adverse opinions expressed with regard to them by French naval officers. In comparing them with English ships of their class, they take a place between the Shah and Raleigh—length and beam approaching the former, while the displacement is only 200 tons greater than the latter. The speed of the Duquesne, at her official trial, is reported as 16.93 knots, and that of the Tourville as 17; while the Shah is rated at 16.45, and the Raleigh at 15.32. Thus, apparently, the French have attained a better design of hull, gaining for a ship of proportionally the same size a lighter displacement and draught and a greater speed, while they have not been obliged to resort to cement filling to gain stability.

The battery for this type of ship was first fixed at seven guns of 16 centimeters for the spar-deck, and 20 guns of 14 centimeters for the gun-deck; but the one actually placed aboard is seven of 19 centimeters, and fourteen of 14 centimeters. This latter seems more in accordance with the strictly military and excellent rule laid down for the armament of this type, viz, that there should be two distinct kinds of battery, one made up of artillery of position, or heavy artillery, and the other of light. The spar-deck battery, contrary to the old rule of armament, has the heavy guns; for the reason that there, *en barbette*, they can sweep the horizon within an angle of fire of 180°, and also gain the maximum of elevation and depression. Their great firing-angle makes transportation unnecessary; weight, therefore, in so far as mobility is concerned, is of little consideration. A good angle of depression being considered an absolute necessity, in close action especially, these guns which possess the greatest penetrating power are raised to the greatest height possible compatible with stability. Herein lies the *raison d'être* of the half-turret. The gun being of the heaviest caliber is given all the freedom of action possible. Center pivoting, in order not to derange the movable weights of the ship more than possible, nor to unnecessarily increase the projecting turret, takes up the least possible space. Finally, while its bow and stern control make raking fire dangerous for the enemy, the gun itself is well protected from

dismounting by raking, both by its position (fore and aft) to receive fire and the rails in front of it. The gun-deck fire is perforce limited to small horizontal angles and angles of depression; here the light battery is placed, and, being of a weight easily transported, the broadside can at will be re-enforced by guns from the other side of the deck.

By the reduction of the gun-deck battery from twenty to fourteen pieces, a heavier stationary battery was made possible, while the broadside, being seven guns on the gun-deck, can in action be increased to ten, the old number, without detriment to the fighting capabilities of the ship.

In choosing the calibers for the battery, the exigencies of the service required of the ship were fully taken into consideration. While with the English ships it was attempted to realize a cruiser that might stand up against a foreign iron-clad, the French limited the work of the ship to fighting the best of its own kind. The 19-centimeter gun furnished a caliber thoroughly efficient for all fighting ranges, and probably as good as a large caliber at short range against unarmored vessels. For the work required of it, it was better than the 16-centimeter, and as good as the 21-centimeter when mobility is taken into consideration.

The gun-deck battery, limited in firing as it is, can only come into full service in close action, and for this 14-centimeter possessed sufficient power with mobility and a weight such as to allow a maximum number of guns to a broadside.

In comparing the offensive power of the *Tourville* with that of the *Shah* and *Raleigh*, it is found that the strength of battery of both the latter ships exceeds that of the *Tourville* both in number of guns and weight of metal. The English ships have for bow-fire one 23-centimeter gun, the *Tourville* three 19-centimeter. The extreme range of the 19-centimeter gun is 9,000 meters, and it is considered that 7,000 meters may safely be taken as the extreme of firing-range at sea. At this distance there can certainly be but slight chance of hitting the small target presented by a flying enemy, and the 19-centimeter can certainly be depended upon at that distance to work effectively against iron merchantmen or unarmored men-of-war as well as the heavier caliber.

For circumstances requiring bow-fire, either in chase or attack, the *Tourville* must be granted superiority due to number of guns. Her chances of hitting a flying enemy are more than three times as great (allowance being made for rapidity of handling the guns and increased freedom of movement). In an attack, up to close range her raking-fire is more powerful, and in a rapid close, where there is but little time to do harm, the chances of disabling an enemy by chance shots are greatly increased. The same reasoning applies to stern-fire in a slightly modified degree. Apparently at least one 14-centimeter gun can be transported to the stern ports, making stern and bow fire nearly equal. The requirements of stern-fire are so varied, that it seems to me criminal to neglect it. The ship must run from a cruising iron-clad, and having speed in her favor, although her guns are light, they are better for curved fire, which would be more effective, than heavier calibers. The fighting must be at long range and the hits would be chance ones, thus increasing the value of number of pieces. In close action, in fleet-fighting, the stern must be presented to the enemy at some time, and here the value of a gun ready loaded at the proper instant may become incalculable. Finally, allowance must be made for disabling machinery. In this case, for the safety of the ship, there must be not only no dead angle, but there must be a strong fire all around.

For beam-fire the English ships are much superior in weight of metal,

the number of guns being about the same (Shah, 14; Tourville, 13; Raleigh, 12), allowing the Tourville to transport three of her 14-centimeter guns to the fighting broadside, which could not be done with heavier calibers. So much can be said on either side with regard to the value of the fire that comparison seems impossible. On the one side it may be argued that against unarmored ships the Tourville calibers are heavy enough at all reasonable fighting ranges, leaving a margin of superiority for rapidity of fire for the lighter guns. In attacks on fortifications or fleet-fighting with iron-clads, however, the heavier battery is the more valuable. Apparently the 14-centimeter gun is the heaviest caliber that can, all things taken into consideration, be readily transported. Many French officers would prefer a 16-centimeter to a 14-centimeter gun-deck battery. This, however, would reduce the present possible broadside of 10 guns to one of 3, since the 16-centimeter would not admit of transportation, and the weight, gun for gun, is more than double for the 16-centimeter that of the 14-centimeter of the 1864 model. It has occurred to me that since the broadside firing is confined to fighting, perhaps a slight change in the spar-deck battery would improve both the navigational power and the effective strength for fighting, without reducing strength elsewhere. That is, in place of the 19-centimeter guns in the center half-turrets, to substitute a center-pivoting 24-centimeter gun amidships between the smoke-stacks. This would give a good armor-piercing caliber. The dead weight would be about the same, but in a better position, and the gun would have the slight raking protection of the foremast and forward smoke-stack. There would be a loss, however, of horizontal firing angle and absolutely no depression, while the deck in the wake of the gun would probably have to be plated or otherwise protected against damage from discharge. The latter point, however, does not appear to be of much importance, since it is successfully worked out in the Duguesclin and Duperré. These being the very last types of iron-clads, whatever objection is offered to the change must apply to these vessels, where certainly they have not nullified the advantages. Apparently, there is room for the change without moving the smoke-stack. The only real disadvantage appears to me to be the addition of a third caliber. In this respect it is well to mention that the French again differ widely from the English in unqualifiedly condemning the system of making a man-of-war a "museum of artillery."

Another point in favor of the Tourville's battery is that, although she has a more powerful fore and aft fire, the ends of the ship are relieved immensely from the great strain and bad balancing effect of the heavy 23-centimeter guns of the Raleigh.

Thus it seems to me, after examination, that, for the services that such ships are called upon to perform, the Tourville is the superior in spite of the difference of weight of metal. As a cruising flag-ship in time of peace, she is, I think, without doubt better in every respect than an iron-clad of the Alma type, although in accordance with French policy the iron-clads must be represented in foreign fleets as visible evidence of naval strength. The Tourville's sail-area is ample; her coal-supply as good as the best; her draught very light for her general qualities and size; her battery is heavy enough to answer in almost any sudden emergency, and her quarters are in every way comfortable. In war-time, her powerful bow-fire would never fail to bring down her prizes at long range, her sweep of heavy spar-deck fire considers almost every circumstance of position in attack or defense, and, to my mind, with the change suggested above, she would be a match for either the Shah or Raleigh in a duel, while her effectiveness against fortifications, or blockade service,

or in fleet-fighting with iron-clads, would be the greatest that can be expected of an unarmored ship.

The lines of this type are very fine forward, the timbers for the length of the fore-castle being given a flare from the spar-deck level up, sufficient to give plenty of working room for the bow-gun. They have a full, powerful shoulder and very slight sheer. The cat and fish davits in this, as in all late types, are pivoted so that they may be swung fore and aft, leaving a clear side. The service-wheel also, as in all French men-of-war, is forward of the smoke-stacks on the bridge. This is a point which I think may well be considered by our own constructors. Why, in a man-of-war, the service-wheel should be low down and away aft, has always been a puzzle to me, only to be answered by the reason that it is the custom, and perhaps by the old notion that the helmsman must have the main topsail to steer by. Our bridges are found anywhere between the smoke-stack and poop; never where the watch-officer can keep a clear lookout ahead and have the helmsman and binnacle under his eye. I have served in three of our ships where, the bridge being between the smoke-stack and mainmast, the watch-officer could not see the sails on the main, nor keep a clear lookout forward; standard and binnacle compasses might almost as well have been in the cabin for all the use they were to him, and the helmsman was almost out of sight and sound. He, however, had the benefit of the warmth (and cinders) from the fire-room in cold weather. The *Duquesne* has a bridge pilot-house, a feature also found in most French types, and a chart-room abaft the smoke-stack. Between the two forward half-turrets, and projecting slightly clear of the side, are large wash-rooms and round-houses. Resting on these are, athwart ship, boat-cradles which hold the waist and quarter-deck boats at sea, leaving a clear, high passage underneath and opening the fore-and-aft line of fire. The mainsail can be carried close hauled without interfering with the smoke-stack. The spar-deck is flush from the break of the fore-castle with very clear gangways. The ships have steel frames and iron hulls sheathed with planks and coppered. The engines are of the compound horizontal pattern, with six cylinders. Boilers of the high regulation type, of medium pressure, twelve in number, with forty-eight furnaces. A great space is devoted to the engine-room in order to secure the advantageous system of placing one engine abaft the other in order that both may not risk being disabled by a single shot, as might be the case were they abreast, in spite of the weak bulkhead between them, as in the *Shah*. In this manner good working space is secured and accessibility to all the working parts. In none of the French types does the screw hoist. The dead-eyes of the lower rigging set up inside the rails.

FIRST-CLASS CRUISER.

Type: *Venus*.

Although I can find no model or description of this type, I insert the slight description possible from having been in company with and aboard of two of these ships in 1868, in Japan.

This type belongs to what is now called the old fleet, and is similar in disposition of battery to the gun-deck corvettes of the past decade. If I remember right, they carried neither bow nor stern pivots, but on the spar-deck had four light broadside guns, about 14 centimeters, or possibly 12 centimeters. The main-deck battery was, I believe, eighteen 14-centimeter guns. The battery at present is put down as sixteen guns, which, if only caliber is changed, would, I suppose, admit four of 14 centimeters on the spar-deck and twelve 16 centimeters on the gun-deck.

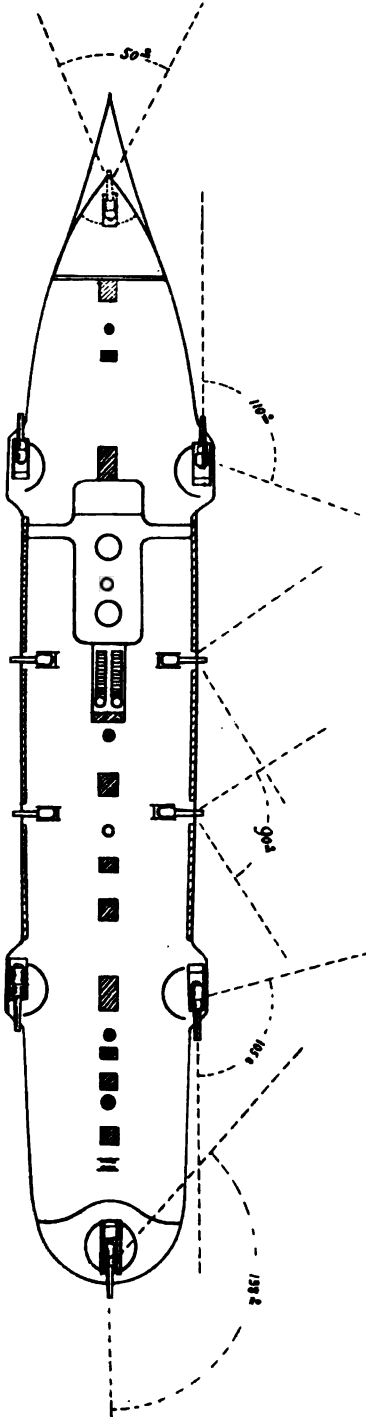
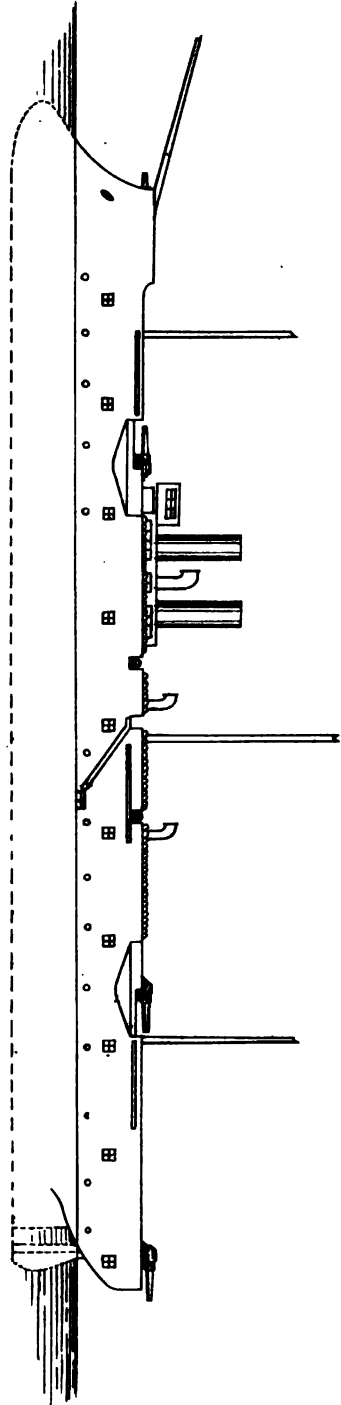
The speed is rated at fourteen knots. The ships of this type that I have seen are the *Venus* and *Minerve*. Both of them are in commission at present as flag-ships. Whether there are any more of the type or not, I do not know; although in the official category there are eight first-class cruisers noted (names not given) besides the *Duquesne* and *Tourville*. Some of these may be old frigates of the *Minnesota* type, with reduced batteries of 14-centimeter guns.

SECOND-CLASS CRUISER.

Type: Duguay-Trouin.

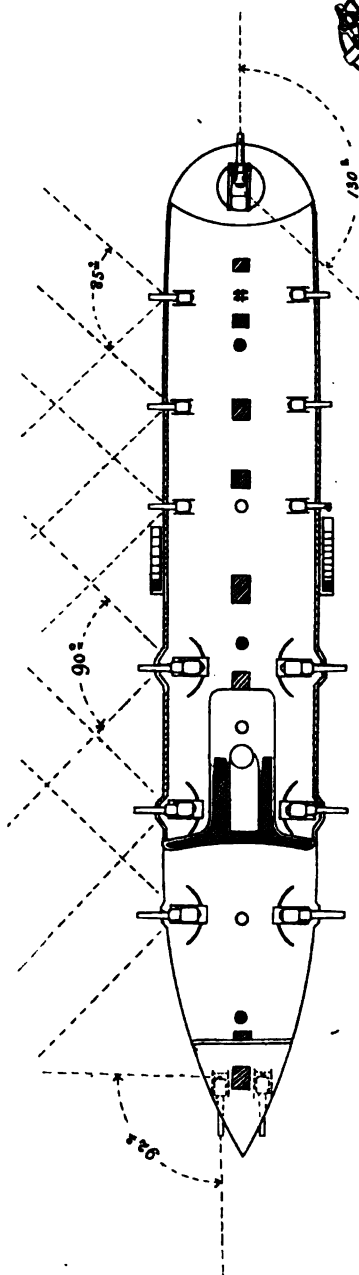
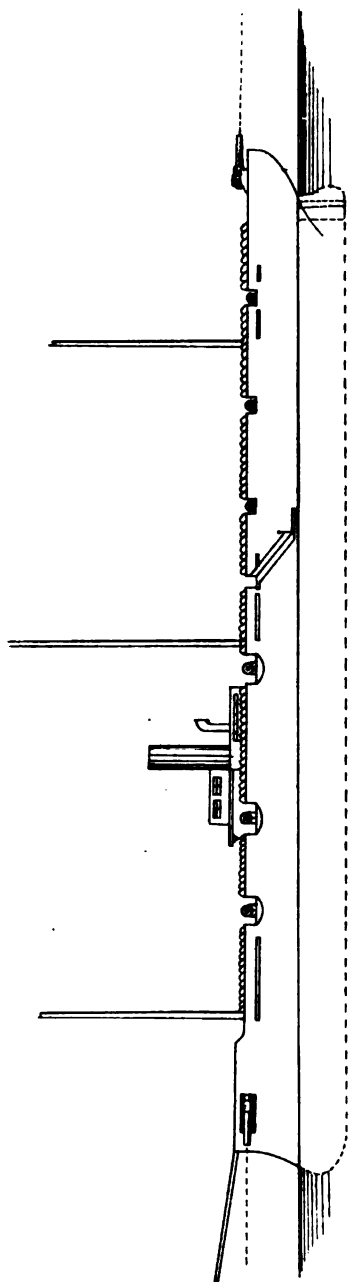
Length between perpendiculars.....	290 feet.
Outside beam at water-line.....	42.8 feet.
Mean load draught.....	16.9 feet.
Displacement.....	2,990 tons.
Area of immersed midship section.....	576.9 square feet.
Power developed by engine.....	3,740 horse-power.
Maximum speed.....	16 knots.
Coal-supply.....	430 tons.
Distance attainable at 10 knots.....	4,000 miles.
Sail-surface.....	19,134 square feet.
Proportion of sail-surface to midship section.....	.25 to 1.
Number of crew.....	230 men.
Battery:	
7½-inch caliber.....	5
4½-inch caliber.....	5
Fire directly ahead:	
Number of guns.....	3.
Weight of metal thrown.....	376.5 pounds shell.
Effective range against unarmored ships.....	8,500 yards.
Fire abeam:	
Number of guns.....	5.
Weight of metal thrown.....	469.5 pounds shell.
Fire astern:	
Number of guns.....	3.
Weight of metal thrown.....	376.5 pounds shell.
Height of battery above water-line.....	14 feet.

This type corresponds nearly to the English *Rover*, and is fully as remarkable as the *Tourville* for originality of disposition of battery. Her guns are all on the spar-deck, although, judging from the appearance of the model, she has a clear gun-deck, or, as it should properly be called in this case, "between decks." The length and beam correspond closely to the *Rover*, although the draught and displacement are much less. The speed of the *Rover* is given as 14.5 knots, while the *Duguay-Trouin* has 16. The difference in battery power is about the same as between the *Shah* and *Tourville*, although in this case the heavier broadside is in favor of the *Trouin*, while the better disposition renders her generally more effective. For bow-fire the *Trouin* has three guns of 19-centimeters to one of 18-centimeters of the *Rover*. This strength of bow-fire is claimed, but, after examination of the model, seems hardly fair to be allowed, since the lower rigging, coming to channel-ways outside the rail, cuts off about 5° from the turret-guns. Even with this, however, the *Trouin* has the heavier bow-gun for single fire. For stern-fire she has two 19-centimeters and one 14-centimeter clear fire against one 18-centimeters of the *Rover*. In broadside, two 19-centimeters and three 14-centimeters against two 18-centimeters (†) and eight 16-centimeters. This gives the *Rover* an undoubted superiority, since, as between unarmored ships, the difference of working effect between 19-centimeters and 18-centimeters is scarcely worthy of account, both being far superior to the resisting



DUGUAY TROUIN.





MAGON. — ROLAND.
FORFAIT. — VILLARS.

power of the target, and the Rover has both number and caliber of lighter pieces in her favor.

I have imagined a different disposition of battery for the Trouin, which would seem to strengthen the broadside without materially lessening the strength of fore-and-aft-fire. By substituting 16-centimeter for the 19-centimeter guns, the bow-gun could be placed on the fore-castle, which would cut off the direct forward fire, but the turrets, I think, could be carried out to give two 16-centimeter guns direct fire clear of the fore-rigging without changing the rolling leverage. Putting two 16-centimeter guns in the after turret would certainly allow an additional pair of broadside 14-centimeters abaft the mizzen-mast. In this way there is a loss of working effect, possibly serious in a ship of this size, and which much reduces her value in coast fortification attack or blockade work, but I think an increase of broadside power for fighting purposes, certainly an increase for chasing.

In a ship of this size, however, the settlement of battery power is a difficult matter, to me at least, since I am of the opinion that with a displacement of 500 tons greater, or with ships of the English Bacchante type, the strength of battery may be more nearly brought to the size of the ship without loss to other qualities.

Chief Engineer King, in his report on European ships of war, mentions this class of ship as being one much needed in our service. In this I am inclined to differ with him, in that, for our first-class cruisers, ships of the Trenton's displacement and measurement would give a greater proportional battery power, while for the working fleet of unarmored ships, a type of ship to be mentioned further on would form the best support.

The most noticeable feature of the Duguay-Trouin is the attempt to carry out the idea of an extreme command of gun power and a high platform.

The between-decks may give rise to criticism on the score of waste of space, but the additional height of battery is worth it. It is in this connection that I am inclined to favor enough greater tonnage to make a gun-deck available.

The Trenton, for example, given a gun-deck battery of breech-loading 100-pounders of the same number as the Rover's battery, could, I think, carry four 8-inch guns in half-turrets like the Trouin, giving her good bow and stern fire and a broadside heavier than the Rover's in spite of our greater weight of metal in converted guns. With new guns the broadside could be brought up at least to the Bacchante, with a superior fore-and-aft fire.

The boilers and engines of the Duguay-Trouin are of the same type as, and arranged similarly to, those of the Duquesne. She carries her mainsail on a wind without interference.

SECOND-CLASS CRUISER.

Type: Villars, Forfait, Magon, Roland.

Length between perpendiculars	249.3 feet.
Outside beam at water-line	38.0 feet.
Mean load-draught	15.9 feet.
Displacement	2,227 tons.
Area of immersed midship section	448.5 square feet.
Power developed by engine	2,500 horse-power.
Maximum speed	15.5 knots.
Coal-supply	400 tons.
Distance attainable at—knots	4,000 miles.
Sail surface	13,988 square feet.

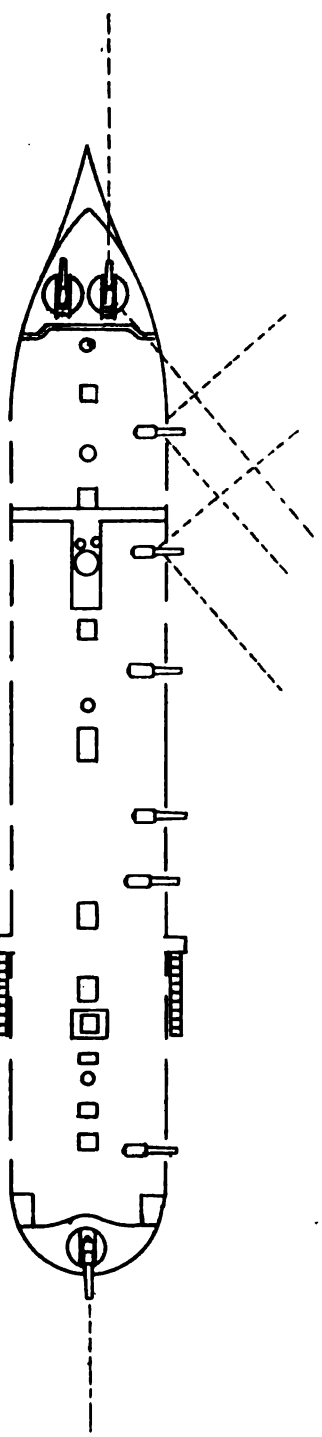
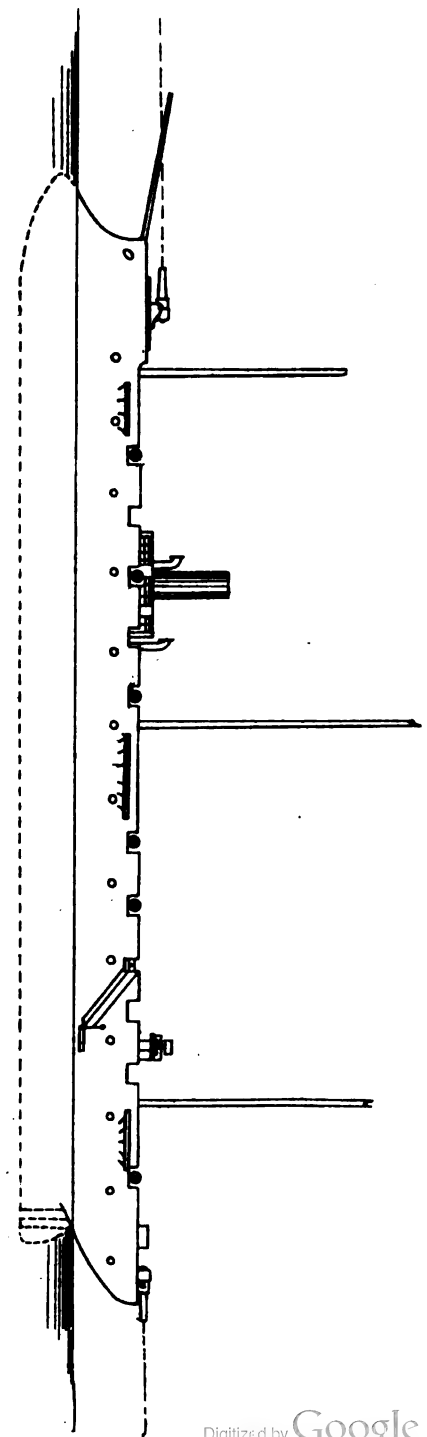
Proportion of sail surface to midship section	31 to 1.
Number of crew	220 men.
Battery :	
6 $\frac{3}{4}$ -inch caliber	6.
5 $\frac{1}{4}$ -inch caliber	9.
Fire directly ahead :	
Number of guns	2.
Weight of metal thrown	93 pounds shell.
Effective range against unarmored ships	5,500 yards.
Fire abeam :	
Number of guns	8.
Weight of metal thrown	532.5 pounds shell.
Fire astern :	
Number of guns	2.
Weight of metal thrown	46.5 pounds shell.
Height of battery above water-line	

This type of cruiser is in size between the *Opal* and *Rover*, being nearer the dimensions of the former. Like the *Opal* she has a recessed bow for two bow-guns, although her forecabin is carried out above and below so as to form a recessed port. The *Opal's* stern is recessed in the same way, as she has a poop cabin, while the flush deck of the *Villars* allows a single barbette-gun. The bow-fire of the two ships is the same if for chasing the 14-centimeters be given the value of 16-centimeters; the stern-fire is in favor of the *Opal*, which has two 16-centimeters against one 14-centimeter of the *Villars*. In broadside the *Opal* has seven 16-centimeters against three 16-centimeters and five 14-centimeter guns. To the *Opal*, then, must be given superiority all around, although having 300 tons less displacement. Other advantages appear in the *Opal*, such as a large topgallant forecabin, giving better berthing facilities forward, and a poop cabin, giving better berthing aft. The weak point of the English vessel is her speed of only 13 knots, against 15.5 of the *Villars*. This in a small ship, or one of this kind, intended especially for convoy and blockade service, is a vital fault. It will perhaps be well to notice here, that in all the smaller classes of French vessels, the galley is placed either just forward or abaft the smoke-stack, and apparently without detriment to draught in the fire-rooms, another point for the consideration of our constructors. One of the greatest evils to be contended with in our own service is the position of the galley in the small ships, which either makes the berth-deck uninhabitable, or under the topgallant forecabin is either in the way of chains and hammocks, or is in constant danger of being washed out. In comparing this ship with the *Duguay-Trouin*, it will, I think, be found that for convoy, blockade, or commerce-destroying work, the batteries are of about equal service, the advantage to the *Trouin* being only found in fleet fighting or fortification attack, while the expense of building and cost of maintenance in commission in a fleet during peace scarcely, I think, warrant their construction.

SECOND-CLASS CRUISER.

Type : *Laperouse*, *D'Estaing*, *Monge*, *Nielly*.

Length between perpendiculars	262.4 feet.
Outside beam at water-line	37.4 feet.
Mean load-draught	17 feet.
Displacement	2,200 tons.
Area of immersed midship section	433.7 square feet.
Power developed by engines	2,500 horse-power.
Maximum speed	15.5 knots.
Coal supply	400 tons.
Distance attainable at 10 knots	4,000 miles.



LAPEROUSE - MONGE - NIELLY - D'ESTAINING.



Sail surface.....	13,988 square feet.
Proportion of sail surface to midship section	31 to 1.
Number of crew	220 men.
Battery:	
6½-inch caliber	6.
5½-inch caliber	9.
Fire directly ahead:	
Number of guns.....	2.
Weight of metal thrown.....	93 pounds shell.
Effective range against unarmored ships	5,500 yards.
Fire abeam:	
Number of guns.....	8.
Weight of metal thrown	532.5 pounds shell.
Fire astern:	
Number of guns.....	1.
Weight of metal thrown	46.5 pounds shell.
Height of battery above water-line	

This type is the counterpart of the Villars, except that with a slightly less displacement she has finer lines, a ram-bow, and carries her bow-guns on the topgallant forecastle; an arrangement which has been decided upon for all future small ships. The bow-guns, it will be noticed, are center-pivots; this is now the rule of the French navy for all pivot-guns.

THIRD-CLASS CRUISER.

Type: Infernet.

This type was designed in 1867 and 1869, the following-named vessels being built and commissioned: Infernet, Champlain, Chateau Renaud, Dessaix, Dupetit-Thouars, Fabert, La Clocheterie, Sané, Saigney, Derres, and Laplace. They form a distinct class worthy of study in connection with the improved type lately added. The dimensions are:

Length between perpendiculars.....	246 feet.
Outside beam at water-line.....	36 feet.
Mean load-draught	12.5 feet.
Displacement	1,370 tons.
Sail surface	15,204 square feet.
Coal supply.....	300 tons.
Maximum speed.....	14.43 knots.
Number of crew.....	210 men.

These vessels were at the time of construction rated second class. They are, as represented by the Infernet, flush fore and aft, with a stern similar above water to the bow. They carried a 16-centimeter gun forward, just abaft the heel of the bowsprit, the rail dropping on either side as far forward as the knight-heads to permit bow-fire to within, I should judge, 15° of right ahead, the gun being a center-pivot. There were eight 14-centimeter guns in broadside, the after pair giving fire right astern by dropping the after part of the rail. Their bow-fire therefore was nothing; broadside, five 14-centimeters, and stern, two 14-centimeters. After a full trial with the class it was found that the movable rail forward was a nuisance, as it was liable to be carried away whenever steaming head to sea. For strengthening the bow and protection of the crew a topgallant forecastle was decided as an absolute necessity. The ram-bow was decided upon not only as a weapon but as giving increased stability forward without being detrimental to power of maneuvering. From the results of the trials of this type sprang the

THIRD-CLASS CRUISER.

Type: *Eclaireur*, *Rigault de Genouilly*.

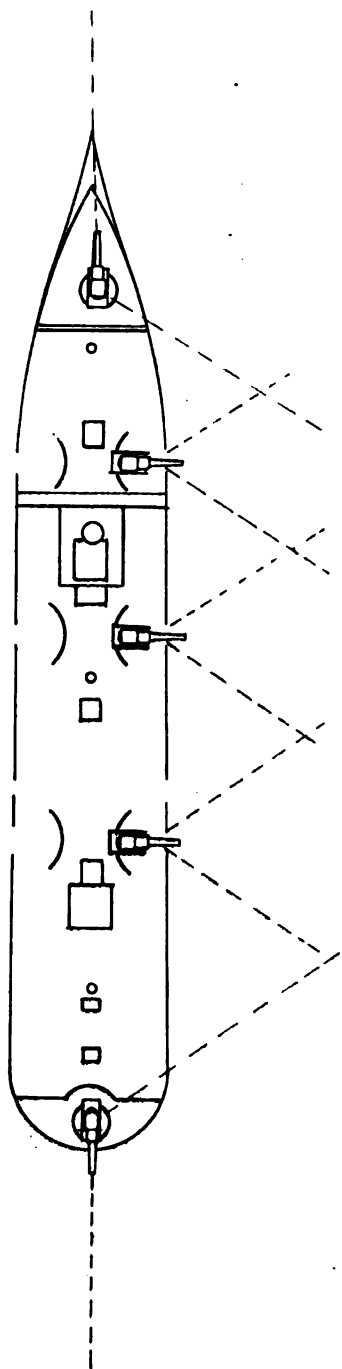
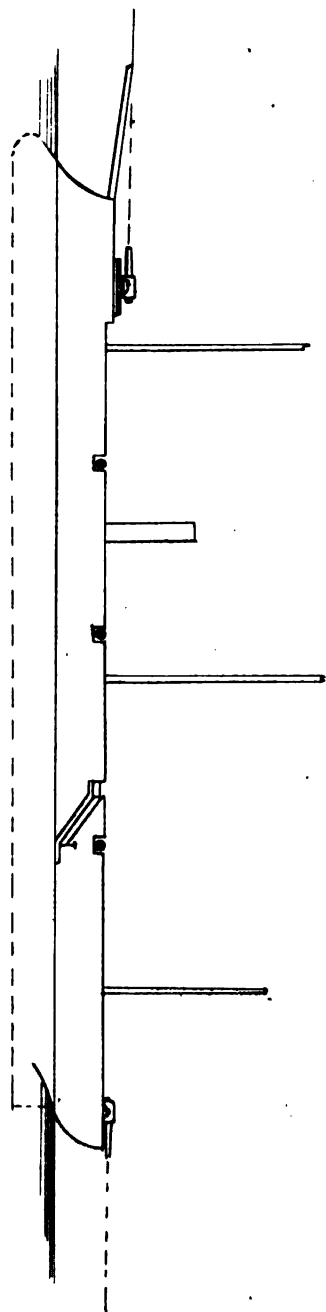
Length between perpendiculars	236 feet.
Outside beam at water-line	35.4 feet.
Mean load-draught	14.7 feet.
Displacement	1,610 tons.
Area of immersed midship section	365.8 square feet.
Power developed by engine	1,900 horse-power.
Maximum of speed	15 knots.
Coal supply	210 tons.
Distance attainable at 10 knots	3,000 miles.
Sail surface	13,450 square feet
Proportion of sail surface to midship section	36.5 to 1.
Number of crew	160 men.
Battery, 5½-inch caliber	8.
Fire directly ahead:	
Number of guns	1.
Weight of metal thrown	46.5-pound shell.
Effective range against unarmored ships	5,500 yards.
Fire abeam:	
Number of guns	5.
Weight of metal thrown	232.5-pound shell.
Fire astern:	
Number of guns	1.
Weight of metal thrown	46.5-pound shell.
Height of battery above water-line	11.4 feet.

This type belongs between the *Amazon* and *Blanche* in measurement. The bow-gun presents the peculiarity of being centered slightly to starboard so as to give clear forward fire. The *Amazon* and *Blanche* carry their batteries amidships, and not being center-pivots give the vessel a desired heel when firing in broadside. The *Eclaireur* has one 14-centimeter for bow and stern fire; the *Blanche* one 16-centimeter for each. The *Eclaireur* delivers five 14-centimeter shots at a broadside, the *Blanche* two 18-centimeter and two 16-centimeter. Thus the *Blanche* with a slightly greater displacement gives a much heavier fire, but only at a sacrifice of stability, very hurtful to small ships in a sea-way. The *Eclaireur* keeps her battery balanced, and has one more gun for broadside. The speed of the *Blanche* is 13 knots against 15 for the *Eclaireur*. This type, as well as the *Laperouse* and *Villars*, is composite built, having compound engines of the Woolf type. They are bark-rigged, with stump topgallant mast. The topgallant forecabin is very roomy, giving good berthing space, and the stern-gun follows the accepted rule of firing *en barbette*.

FIRST CLASS AVISO.

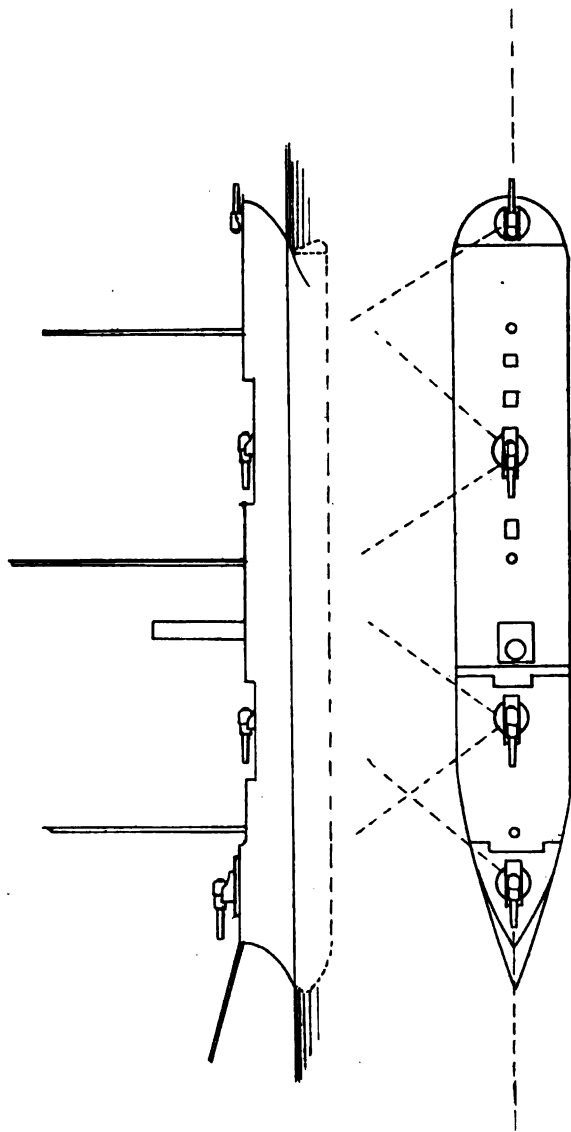
Type: *Chasseur*, *Hussard*, *Labourdonnais*, *Bisson*, *Voltigeur*, *Lancier*.

Length between perpendiculars	200 feet.
Outside beam at water-line	28 feet 5 inches.
Mean load-draught	11 feet.
Displacement	780 tons.
Area of immersed midship section	201.4 square feet.
Power developed by engine	849 horse-power.
Maximum speed	12.18 knots.
Coal supply	110 tons.
Distance attainable at 9 knots	3,000 miles.
Sail surface	8,855 square feet
Proportion of sail surface to midship section	25 to 1.
Number of crew	85.
Battery, 5½-inch caliber	4.



ECLAIREUR. RIGAULT DE GENOUILLY.





BISSON. VOLTIGEUR. LABOURDONNAIS.

CHASSEUR. HUSSARD. LANCIER



Fire directly ahead :	
Number of guns	1.
Weight of metal thrown	46.5-pound shell.
Effective range against unarmored ships	5,500 yards.
Fire abeam :	
Number of guns	4.
Weight of metal thrown	185.6-pound shell.
Fire astern :	
Number of guns	1.
Weight of metal thrown	46.5-pound shell.
Height of battery above water-line	8.3.

This vessel compares in displacement and measurements with the Flamingo type of English gunboats. The Flamingo has 16-centimeter bow and stern guns against 14-centimeters in the Chasseur. Their broadsides are two 16-centimeters and one 18-centimeter against four 14-centimeters. The battery, again, of the English vessel is the more powerful in all directions. The speed is 10 knots for the Flamingo and 12.18 for the Chasseur. Both batteries are entirely pivot-guns, carried amidships, the one, however, of the Chasseur being better placed, as it is center-pivoting. The Chasseur's topgallant forecastle is large enough to furnish good berthing accommodation.

FIRST CLASS AVISO.

Type : D'Estrees.

This type of vessel, laid down at the same time as the Infernet, has always been classed as a third-class cruiser. They were flush, like the Infernet, and of the same general class of broadside gunboats, with forward and after pivots, the rail dropping in this case as in the other. Of this type there were put into service the following vessels : D'Estrees, Beauteemps-Beaupré, Bourzague, Dayot, Hamelin, Duchaffaut, Ducouedic, Forbin, and Hugon. Their dimensions are :

Length between perpendiculars	207 feet.
Outside beam at water-line	34 feet.
Mean load-draught	14 feet.
Maximum speed	12.3 knots.
Coal supply	220 tons.
Number of crew	150 men.

The battery is made up of two 16-centimeter guns, bow and stern pivots, and four 14-centimeter guns in broadside, making them, in battery power, hold a place between the Eclaireur and Chasseur, although the old type puts them in the rank of avisos.

TRANSPORT AVISO.

Type : Allier, Romanche, Drac, Nievre, Saône.

Length between perpendiculars	207 feet.
Outside beam at water-line	34.4 feet.
Mean load-draught	8.2 feet.
Displacement	451 tons.
Area of immersed midship section	161.4 square feet.
Power developed by engine	150 H. P., nominal.
Maximum speed	
Coal supply	180 tons.
Distance attainable at — knots	
Sail surface	1,302 square feet.
Proportion of sail surface to midship section	12 to 1.
Number of crew	
Carrying capacity	220 tons.
Battery, 5½ inch caliber	4.

Fire directly ahead :

Number of guns	1.
Weight of metal thrown	46.5 pounds shell.
Effective range against unarmored ships.....	5,500 yards.

Fire abeam :

Number of guns	4.
Weight of metal thrown	185.6 pounds shell.

Fire astern :

Number of guns	1.
Weight of metal thrown	46.5 pounds shell.

Height of battery above water-line.....

This type of vessel, although scarcely belonging to the rank and file of cruisers, is well armed and possesses several points of interest. They have no counterpart in the English or other navies. For transports of their size they carry a very heavy battery, and seem to be a sort of general-utility craft. The long forecastle and poop give them excellent quarters, and, combined with their light draught, make them excellent for coast survey or special duty of a like nature. Their battery is heavy enough to class them with third-class cruisers, and is sufficient for most any emergency. Finally, their carrying power fits them for heavy work on the home stations, fit for carrying relief crews or stores to foreign stations, or, if desirable, for an increase of battery power. Although not of a very fine shape, the model of the *Allier* satisfied me better as being a hull worthy of imitation in our service than any that I have seen. As we are now accumulating a type of coast-survey steamers, it seems that this type would be as good as can be found for comfort and service in peace times and for good fighting gunboats during war. Cargo, space, and tonnage it seems might be given up to secure as powerful engines as the frame can stand and thus realize a 15-knot cruiser, good for other than service duty in peace times. This is the only type of French gunboat that has equal weight of battery with vessels of her displacement in the English navy.

FIRST-CLASS GUNBOAT.

Type: Crocodile, Lutin, Lionne, Lynx.

Length between perpendiculars.....	141.7 feet.
Outside beam at water-line.....	23.9 feet.
Mean load-draught	8.23 feet.
Displacement	451 tons.
Area of immersed midship section	161.4 square feet.
Power developed by engine	457 horse-power.
Maximum speed.....	9.7 knots.
Coal supply.....	50 tons.
Distance attainable at — knots.....	
Sail surface	888 square feet.
Proportion of sail surface to midship section	18 to 1
Number of crew	70 men.

Battery :

7½-inch caliber.....	1.
4½-inch caliber.....	2.

Fire directly ahead :

Number of guns	1.
Weight of metal thrown	24 pounds shell.
Effective range against unarmored ships.....	3,000 yards.

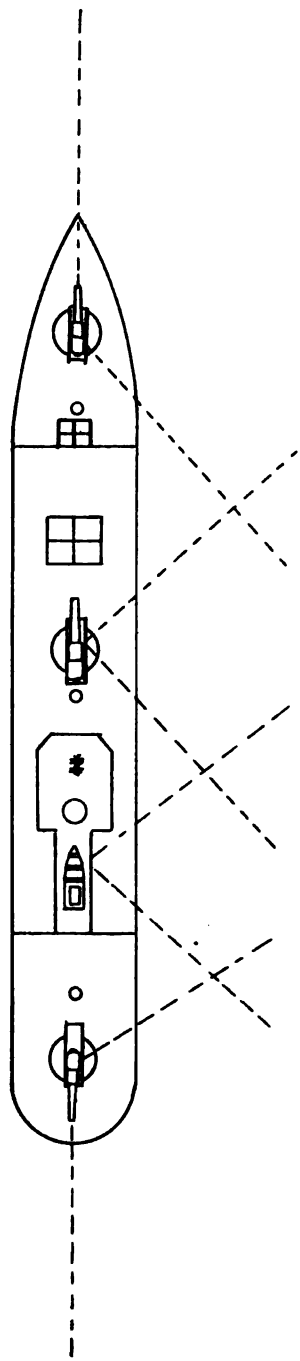
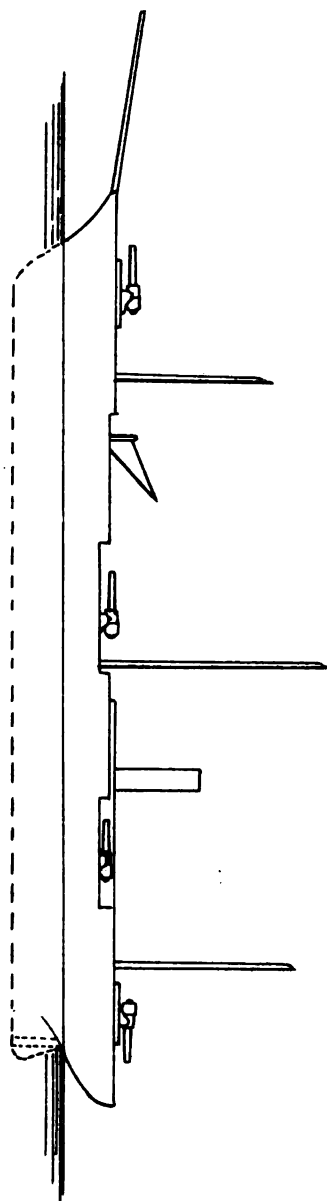
Fire abeam :

Number of guns	3.
Weight of metal thrown	213 pounds shell.

Fire astern :

Number of guns	1.
Weight of metal thrown	24 pounds shell.

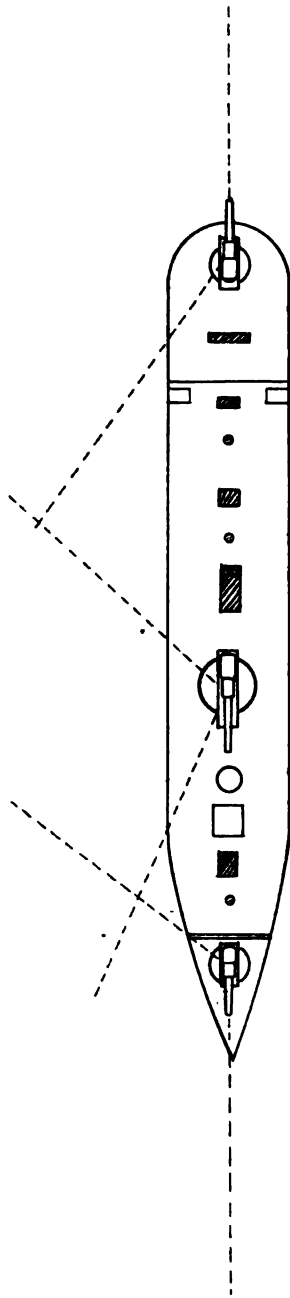
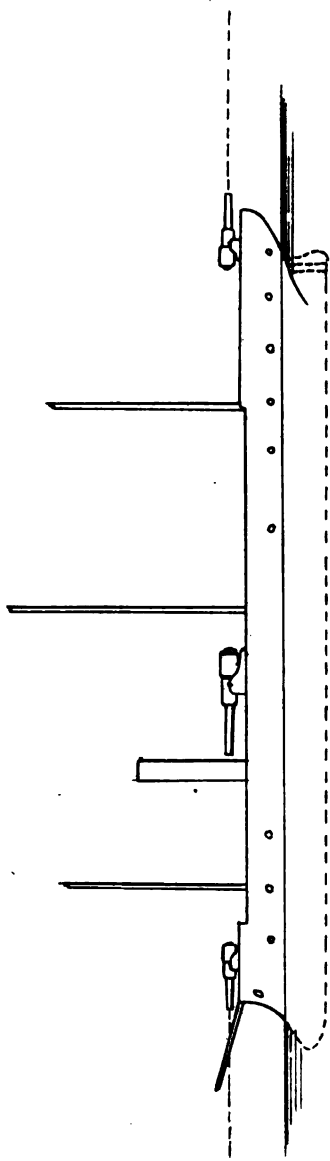
Height of battery above water-line..... 9 feet.



DRAC. NIEVRE. SAONE.

ALLIER. ROMANCHE.





CROCODILE. LUTIN. LYNX. LIONNE.



This type finds its place both in displacement and armament between the *Coquette* and the *Arab*. Its midship 19-centimeter gun is center pivoting. The slide rests on rollers on a heavy brass circle having a flange around the rim to steady the rollers. A rack is worked around the outer surface of this flange, in which travels a pinion connected with the rear of the slide. A small iron platform is hinged to the rear of the slide for the use of the loaders; this turns up against the carriage when not in use. The whole arrangement is very snug and leaves the gangways perfectly clean, but the elevation of the gun above the deck seems much too great, being sufficient to allow quite an angle of depression over the rail. It seems to me that the stability of the vessel would be much increased were the heavy circle sunk in the deck, and the gun allowed to sit deeper in the carriage. The light 10-centimeter guns give fire all around almost, but it is probable that they will soon be replaced by the Hotchkiss 47-millimeter gun. The speed is less than in corresponding types of English gunboats by half a knot.

SECOND-CLASS GUNBOAT.

Type: *Aspic*.

This type is of an earlier construction. The *Aspic* was on surveying service in Japan in 1867, where I saw her very often, and she is still there. The type differs from the *Lutin* in having a straight bow, and being flush fore and aft. Across the after part of her forecastle a shielded bulkhead runs consisting of a three-inch plate or a four-and-a-half-inch, I am not certain which, the gun firing over the rail completely *en barbette*. The gunboats of this type are the *Aspic*, *Decidée*, *Pique*, *Surprise*, *Tactique*, *Couleuvre*, *Diligente*, *Frelon*, and *Scorpion*.

Length between perpendiculars.....	128 feet.
Outside beam at water line.....	21.6 feet.
Mean load-draught.....	8.4 feet.
Maximum speed.....	8 knots.
Coal supply.....	38 tons.
Number of crew.....	60 men.

Battery, 2 14-centimeter guns firing ahead and astern or in broadside.

LAUNCH GUNBOAT.

Type: *Épée*.

This type comes between the *Staunch* and *Blazer*. The dimensions are:

Length between perpendiculars.....	78.7 feet.
Outside beam at water-line.....	24.6 feet.
Mean load-draught.....	5 feet.
Displacement.....	178 tons.
Maximum speed.....	8.75 knots.
Number of crew.....	24 men.
Battery :	
24-centimeter gun.....	1.
12-centimeter gun, stern pivot.....	1.
Height of battery above water-line.....	5.9 feet.

These boats have double screws and engines. I can only find a record of two, *Épée* and *Tromblon*.

This completes the list of the French types with the exception of the old screw frigates and corvettes, a type of gunboat Renard, whose peculiarity consists in an enormous ram-bow intended to give buoyancy to

the forward part of the hull; the first-class unarmored transports, type Shamrock, the horse-transports, having a very light battery, and a type of gunboat in use in Cochin China which I cannot find described anywhere.

As with the iron-clads, I cannot intrude a conclusion as to the superiority of the types radically different from corresponding English ships. The French principle of securing the most perfect all-around fire from upper-deck batteries by means of half turrets, center pivots, and barbette stern guns, seems, however, far preferable to the English one of long pivot circles which list the ship, and ports at right angles to secure fore and aft and abeam fire. The first principle with the French is speed, and that they certainly attain. Their loss in battery strength is remedied in a manner by superior velocities of projectiles and rapidity of fire made possible by center pivoting and breech-loading. Roomy quarters for the crew seem to be a greater desideratum with the French than with either the English or ourselves. The Hotchkiss gun must be considered an addition to the batteries of all types of unarmored as well as iron-clad ships.

In closing, I call attention to a Spanish gunboat lately built by the Compagnie des Forges et Chantiers de la Méditerranée, the Jorge Juan, as showing the smallest type of ships to which the half turret for fore-and-aft fire has been applied. The dimensions of this vessel are:

Length between perpendiculars	209 feet.
Outside beam at water-line	29.6 feet.
Mean load-draught	12.3 feet.
Displacement	900 tons.
Maximum speed	13.45 knots.
Battery, 16 centimeters caliber	3.
Height of battery above water-line:	
Bow-chaser	17.7 feet.
Turret-guns	10.8 feet.

The bow-gun is a center-pivot on the topgallant fore-castle, the slide working in a well to reduce the height. The broadside guns are in half turrets similar to the Tourville's, just abaft the forward back-stays. There is a broadside port just abaft the smoke-stack apparently in contemplation of the addition of another pair of broadside guns of lighter caliber.

This gunboat by her measurements is about the size of the English Daring, which carries two 18-centimeter guns amidships and two 16-centimeter for bow and stern fire.

In comparing power of fire: The Jorge Juan has three 16-centimeters for bow-fire to one 16-centimeter of the Daring; two 16-centimeters stern-fire to one of the other, and two 16-centimeters in broadside to two 18-centimeters of the other. The application of the turret in this case gives the perfection of horizontal firing angle, reaching a full 180°. It seems, however, as if it would have been possible to have placed them in *échelon* slightly so as to have given three 16-centimeters in broadside, or failing this the displacement seems to warrant a 16-centimeter gun amidships on the quarter-deck, which would have given an equal fire all around, and one of great weight for the size of the gunboat.

I am, sir, very respectfully, your obedient servant,

EDWARD W. VERY,
Lieutenant, United States Navy.

Commodore WILLIAM N. JEFFERS, U. S. N.,

Chief of Bureau of Ordnance.

RANGE TABLE.*

Class of gun 8-inch M. L. R. Permanent angle of deflection for side sights ... 1° 50'.
 Charge of powder 35 pounds, hexagonal. Distance between sights (central) 44.5 inches.
 Kind of projectile Battering shell. Initial velocity 1,450 ft. secs.
 Weight of projectile 180 pounds, filled.

[Ranges referred to the horizontal plane through the trunnions.]

Range.	Elevation.	Time of flight.	Angle of fall.	Remaining velocity.	Drift.	Range.	Elevation.	Time of flight.	Angle of fall.	Remaining velocity.	Drift.
Yards.	° ' "	Secs.	° ' "	Ft. secs.	Yards.	Yards.	° ' "	Secs.	° ' "	Ft. secs.	Yards.
100	0 08	0.21	0 08	1,428	0.03	2,600	4 30	6.52	5 40	1,025	6.53
200	0 16	0.42	0 16	1,400	0.07	2,700	4 44	6.81	5 59	1,016	7.13
300	0 24	0.63	0 25	1,385	0.12	2,800	4 58	7.11	6 18	1,008	7.76
400	0 32	0.85	0 34	1,364	0.19	2,817	5 00	7.16	6 21	1,007	7.86
500	0 41	1.07	0 43	1,343	0.28	2,900	5 12	7.41	6 37	1,000	8.41
600	0 50	1.29	0 52	1,323	0.38	3,000	5 26	7.71	6 56	992	9.09
700	0 59	1.52	1 03	1,304	0.48	3,100	5 40	8.01	7 17	985	9.80
769	1 00	1.55	1 03	1,302	0.40	3,200	5 55	8.32	7 38	978	10.56
800	1 08	1.75	1 14	1,285	0.51	3,243	6 00	8.51	7 46	974	10.85
900	1 18	1.98	1 25	1,260	0.65	3,300	6 10	8.63	7 59	971	11.35
1,000	1 28	2.23	1 36	1,244	0.82	3,400	6 25	8.94	8 20	964	12.16
1,100	1 38	2.47	1 47	1,230	1.00	3,500	6 40	9.25	8 41	957	13.01
1,200	1 48	2.72	1 58	1,213	1.21	3,600	6 55	9.56	9 02	951	13.88
1,300	1 58	2.97	2 08	1,197	1.43	3,643	7 00	9.70	9 11	948	14.21
1,311	2 00	3.00	2 14	1,195	1.46	3,700	7 10	9.88	9 23	944	14.78
1,400	2 09	3.22	2 26	1,181	1.68	3,800	7 26	10.20	9 46	938	15.74
1,500	2 20	3.48	2 41	1,165	1.95	3,900	7 42	10.52	10 09	932	16.73
1,600	2 31	3.74	2 56	1,149	2.25	4,000	7 58	10.84	10 32	926	17.75
1,700	2 42	4.00	3 11	1,134	2.56	4,017	8 00	10.90	10 36	925	17.90
1,800	2 53	4.27	3 26	1,120	2.90	4,100	8 14	11.16	10 55	920	18.80
1,863	3 00	4.44	3 33	1,111	3.12	4,200	8 30	11.49	11 18	914	19.87
1,900	3 04	4.54	3 41	1,106	3.25	4,300	8 46	11.82	11 41	909	20.98
2,000	3 16	4.81	3 56	1,093	3.65	4,377	9 00	12.08	12 01	904	21.92
2,100	3 28	5.09	4 13	1,080	4.06	4,400	9 04	12.15	12 04	903	22.20
2,200	3 40	5.37	4 30	1,067	4.50	4,500	9 22	12.48	12 29	898	23.44
2,300	3 52	5.65	4 47	1,056	4.96	4,600	9 40	12.82	12 54	892	24.73
2,365	4 00	5.83	4 57	1,049	5.28	4,700	9 58	13.16	13 19	887	26.04
2,400	4 04	5.94	5 04	1,045	5.45	4,723	10 00	13.26	13 26	885	26.25
2,500	4 16	6.23	5 21	1,035	5.95						

* Computed by Lieut. John P. Merrell, U. S. N.

RANGE TABLE.*

Class of gun 8-inch M. L. R. Permanent angle of deflection for side sights 1° 50'.
 Charge of powder 25 pounds, hexagonal. Distance between sights (central) 44.5 inches.
 Kind of projectile Shell. Initial velocity 1,200 ft. secs.
 Weight of projectile 180 pounds, filled.

[Ranges referred to the horizontal plane through the trunnions.]

Range.	Elevation.	Time of flight.	Angle of fall.	Remaining velocity.	Drift.	Range.	Elevation.	Time of flight.	Angle of fall.	Remaining velocity.	Drift.
Yards.	° ' "	Secs.	° ' "	Ft. secs.	Yards.	Yards.	° ' "	Secs.	° ' "	Ft. secs.	Yards.
100	0 11	0.25	0 11	1,184	1.04	1,900	4 20	5.33	4 55	979	4.50
200	0 23	0.51	0 23	1,168	0.07	2,000	4 36	5.64	5 14	972	5.13
300	0 35	0.77	0 35	1,152	0.12	2,100	4 52	5.95	5 34	965	5.70
400	0 47	1.03	0 48	1,138	0.19	2,155	5 00	6.12	5 45	962	6.01
485	1 00	1.28	1 02	1,124	0.28	2,200	5 08	6.26	5 54	959	6.30
500	1 00	1.29	1 02	1,123	0.28	2,300	5 24	6.57	6 14	952	6.93
600	1 13	1.56	1 16	1,109	0.40	2,400	5 40	6.89	6 34	946	7.59
700	1 26	1.83	1 31	1,096	0.55	2,500	5 57	7.21	6 56	939	8.29
800	1 39	2.11	1 46	1,082	0.73	2,521	6 00	7.29	7 01	938	8.43
900	1 53	2.39	2 02	1,070	0.94	2,600	6 14	7.53	7 18	933	9.03
949	2 00	2.52	2 09	1,064	1.06	2,700	6 31	7.85	7 40	927	9.80
1,000	2 07	2.67	2 18	1,058	1.18	2,800	6 48	8.17	8 02	921	10.61
1,100	2 21	2.95	2 34	1,047	1.44	2,867	7 00	8.40	8 15	917	11.18
1,200	2 35	3.24	2 50	1,037	1.73	2,900	7 06	8.50	8 27	916	11.47
1,300	2 49	3.53	3 07	1,027	2.05	3,000	7 24	8.83	8 46	910	12.36
1,373	3 00	3.75	3 19	1,021	2.30	3,100	7 42	9.16	9 09	904	13.29
1,400	3 04	3.83	3 24	1,018	2.50	3,199	8 00	9.49	9 32	899	14.25
1,500	3 19	4.13	3 41	1,010	2.78	3,200	8 00	9.49	9 32	899	14.25
1,600	3 34	4.43	3 58	1,002	3.10	3,300	8 18	9.83	9 55	893	15.23
1,700	3 49	4.73	4 17	994	3.62	3,400	8 37	10.17	10 19	888	16.30
1,774	4 00	4.95	4 31	988	3.96	3,500	8 56	10.51	10 43	883	17.39
1,800	4 04	5.03	4 36	986	4.08	3,522	9 00	10.58	10 49	881	17.64

* Computed by Lieut. John P. Merrell, U. S. N.

RANGE TABLE.*

Class of gun.....80-pounder (Parrott), B. L. R.
 Charge of powder.....10 pounds, rifle.
 Kind of projectile.....Short shell.
 Weight of projectile.....80 pounds, filled.

Permanent angle of deflection for tangent sight.
 Distance between sights.
 Initial velocity of shell.....1,250 ft. secs.

[Ranges referred to the horizontal plane through the trunnions.]

Range.	Elevation.	Time of flight.	Angle of fall.	Remaining velocity.	Range.	Elevation.	Time of flight.	Angle of fall.	Remaining velocity.
<i>Yards.</i>	<i>° /</i>	<i>Seconds.</i>	<i>° /</i>	<i>Ft.-secs.</i>	<i>Yards.</i>	<i>° /</i>	<i>Seconds.</i>	<i>° /</i>	<i>Ft.-secs.</i>
100	0 11	0.24	0 11	1,225	1,790	4 00	5.03	4 46	953
200	0 22	0.49	0 23	1,201		4 02	5.06	4 47	952
300	0 34	0.74	0 35	1,177		4 18	5.38	5 08	945
400	0 46	1.00	0 48	1,155		4 34	5.70	5 30	935
500	0 58	1.26	1 01	1,134		4 51	6.02	5 52	926
521	1 00	1.32	1 03	1,129	2,154	5 00	6.20	6 04	921
600	1 10	1.53	1 14	1,113		5 08	6.34	6 14	917
700	1 23	1.80	1 29	1,094		5 26	6.67	6 37	909
800	1 36	2.08	1 44	1,075		5 44	7.00	7 00	901
900	1 49	2.36	2 00	1,058	2,494	6 00	7.32	7 23	894
981	2 00	2.59	2 13	1,046		6 02	7.34	7 24	893
1,000	2 02	2.64	2 17	1,043		6 20	7.68	7 48	886
1,100	2 16	2.93	2 34	1,028		6 38	8.02	8 13	878
1,200	2 30	3.23	2 51	1,016		6 57	8.36	8 38	871
1,300	2 45	3.53	3 09	1,004	2,821	7 00	8.43	8 43	869
1,400	3 00	3.83	3 28	992		7 16	8.71	9 03	865
1,401	3 00	3.83	3 28	992		7 35	9.06	9 29	856
1,500	3 15	4.13	3 47	982		7 54	9.41	9 55	849
1,600	3 30	4.44	4 06	972	3,133	8 00	9.53	10 05	847
1,700	3 46	4.75	4 26	962					

* Computed by Lieut. J. P. Merrell, U. S. N.

RANGE TABLE.*

Class of gun.....100-pounder (Parrott), M. L. R.
 Charge of powder.....10 pounds, rifle.
 Kind of projectile.....Parrott shell.
 Weight of projectile.....100 pounds, filled.

Permanent angle of deflection for tangent sight.
 Distance between sights.
 Initial velocity of shell.....1,080 ft. secs.

[Ranges referred to the horizontal plane through the trunnions.]

Range.	Elevation.	Time of flight.	Angle of fall.	Remaining velocity.	Range.	Elevation.	Time of flight.	Angle of fall.	Remaining velocity.
<i>Yards.</i>	<i>° /</i>	<i>Seconds.</i>	<i>° /</i>	<i>Ft.-secs.</i>	<i>Yards.</i>	<i>° /</i>	<i>Seconds.</i>	<i>° /</i>	<i>Ft.-secs.</i>
100	0 14	0.28	0 14	1,066	1,700	4 36	5.15	5 09	923
200	0 29	0.56	0 29	1,053		4 54	5.48	5 24	916
300	0 44	0.85	0 44	1,041	1,833	5 00	5.59	5 33	914
400	0 59	1.14	1 00	1,029		5 12	5.81	5 47	910
405	1 00	1.16	1 01	1,029		5 31	6.14	6 10	903
500	1 14	1.44	1 16	1,019		5 50	6.47	6 33	897
600	1 30	1.73	1 33	1,009	2,158	6 00	6.67	6 45	893
700	1 46	2.03	1 50	1,000		6 08	6.81	6 56	891
800	2 02	2.33	2 08	991		6 27	7.15	7 19	885
900	2 18	2.63	2 26	983	2,470	6 47	7.49	7 42	879
1,000	2 34	2.94	2 44	974		7 07	7.83	8 08	873
1,100	2 51	3.25	3 03	966		7 27	8.18	8 34	867
1,151	3 00	3.41	3 13	962	2,767	7 47	8.53	9 00	861
1,200	3 08	3.56	3 22	959		8 00	8.76	9 13	857
1,300	3 25	3.87	3 41	951		8 07	8.88	9 26	855
1,400	3 42	4.19	4 00	944		8 27	9.23	9 52	850
1,500	4 00	4.51	4 21	937		8 48	9.58	10 18	844
1,500	4 00	4.51	4 21	937	3,056	9 00	9.78	10 32	841
1,600	4 18	4.83	4 42	930		9 09	9.94	10 47	839

* Computed by Lieut. J. P. Merrell, U. S. N.

RANGE TABLE.*

Class of gun	100-pounder (Parrott) M. L. R.	Permanent angle of deflection for tangent sight ..
Charge of powder	8 pounds, rifle.	Distance between sights
Kind of projectile	Parrott shell.	
Weight of projectile	80 pounds, filled.	Initial velocity of shell

1140 ft. sec.

[Ranges referred to the horizontal plane through the trunnions.]

Range.	Angle of elevation.	Drift.	Time of flight.	Angle of fall.	Remaining velocity.	Range.	Angle of elevation.	Drift.	Time of flight.	Angle of fall.	Remaining velocity.
<i>Yds.</i>	<i>° ' "</i>	<i>Yds.</i>	<i>Secs.</i>	<i>° ' "</i>	<i>Ft.-secs.</i>	<i>Yds.</i>	<i>° ' "</i>	<i>Yds.</i>	<i>Secs.</i>	<i>° ' "</i>	<i>Ft.-secs.</i>
100	0 13	0.01	0.28	0 14	1,129	1,888	5 00	4.31	5.79	5 53	988
200	0 26	0.04	0.55	0 28	1,119	1,900	5 02	4.37	5.83	5 56	985
300	0 40	0.09	0.82	0 41	1,109	2,000	5 32	4.89	6.18	6 22	980
400	0 54	0.17	1.10	0 56	1,099	2,100	5 42	5.46	6.54	6 48	975
443	1 00	0.30	1.23	1 02	1,095	2,188	6 00	5.99	6.86	7 13	971
500	1 14	0.28	1.38	1 11	1,090	2,200	6 02	6.06	6.90	7 16	970
600	1 23	0.38	1.66	1 27	1,081	2,300	6 23	6.69	7.26	7 44	965
700	1 38	0.54	1.95	1 44	1,072	2,400	6 44	7.38	7.63	8 13	960
800	1 53	0.69	2.25	2 01	1,063	2,470	7 00	7.88	7.90	8 33	957
845	2 00	0.72	2.39	2 10	1,058	2,500	7 06	8.09	8.01	8 42	955
900	2 08	0.88	2.53	2 19	1,054	2,600	7 28	8.85	8.39	9 12	950
1,000	2 24	1.10	2.86	2 38	1,046	2,700	7 51	9.66	8.78	9 44	945
1,100	2 40	1.34	3.17	2 58	1,038	2,737	8 00	9.98	8.94	9 56	943
1,200	2 58	1.62	3.48	3 17	1,030	2,800	8 14	10.51	9.18	10 17	940
1,317	3 00	1.67	3.55	3 21	1,029	2,900	8 38	11.41	9.58	10 50	935
1,300	3 14	1.92	3.80	3 38	1,022	2,987	9 00	12.24	9.95	11 19	931
1,400	3 31	2.25	4.12	3 59	1,015	3,000	9 03	12.36	9.99	11 24	931
1,500	3 49	2.62	4.45	4 21	1,009	3,100	9 28	13.34	10.41	11 59	927
1,563	4 00	2.86	4.67	4 35	1,007	3,200	9 53	14.38	10.83	12 34	923
1,600	4 07	3.00	4.79	4 44	1,003	3,228	10 00	14.68	10.95	12 44	920
1,700	4 25	3.42	5.13	5 07	997	3,300	10 18	15.45	11.25	13 10	919
1,800	4 43	3.88	5.48	5 31	991						

* Computed by Ensign R. F. Nicholaon, U. S. N.

RANGE TABLE.*

Class of gun	60-pounder (Parrott) M. L. R.	Permanent angle of deflection for tangent sight	12° 24'.
Charge of powder	6 pounds rifle-powder.	Distance between sights	39.33 in.
Kind of projectile	Shell, service-pattern.	Angle of jump, directing-bar carriage	0° 27'.
Weight of projectile	48 pounds, filled.	Initial velocity of shell	1,320 ft. sec.

[Ranges referred to the horizontal plane through the trunnions.]

Range.	Elevation.	Drift.	Time of flight.	Marks on the sight-bar.	Marks on the sliding-leaf.	No. of turns of milled head.
<i>Yards.</i>	<i>° ' "</i>	<i>Yards.</i>	<i>Seconds.</i>	<i>Inches.</i>		
100	0 14	0.	0.26	- 0.32	0.00	0
200	0 01	0.	0.52	- 0.01	0.00	0
264	0 00	0.	0.53	0.00	0.00	0
300	+ 0 13	6.03	0.78	+ 0.15	0.004	0
400	0 26	0.07	1.05	0.30	0.007	04
500	0 39	0.13	1.32	0.45	0.010	04
600	0 52	0.22	1.60	0.60	0.013	04
656	1 00	0.28	1.77	0.69	0.016	04
700	1 05	0.32	1.88	0.75	0.017	04
800	1 18	0.44	2.16	0.90	0.021	1.0
900	1 31	0.58	2.44	1.05	0.025	1.0
1,000	1 45	0.75	2.72	1.20	0.029	14
1,100	1 59	0.93	3.00	1.36	0.033	14
1,169	2 00	0.95	3.03	1.37	0.033	14
1,200	2 13	1.13	3.29	1.52	0.037	14
1,300	2 28	1.36	3.59	1.69	0.041	14
1,400	2 43	1.60	3.90	1.86	0.045	17
1,500	2 58	1.87	4.21	2.03	0.049	2.0
1,517	3 00	1.89	4.26	2.061	0.050	2.0
1,600	3 13	2.19	4.52	2.21	0.053	24
1,700	3 28	2.51	4.84	2.38	0.057	24
1,800	3 44	2.87	5.16	2.56	0.062	24
1,900	4 00	3.24	5.48	2.75	0.067	24

* Computed by Lieut. J. R. Selfridge, U. S. N.

RANGE TABLE—Continued.

Range.	Elevation.	Drift.	Time of flight.	Marks on the sight-bar.	Marks on the sliding-leaf.	No. of turns of milled head.
<i>Yards.</i>	<i>° ' "</i>	<i>Yards.</i>	<i>Seconds.</i>	<i>Inches.</i>		
2,000	4 17	3.65	5.80	2.94	0.072	3
2,100	4 34	4.09	6.13	3.14	0.077	34
2,200	4 52	4.56	6.47	3.35	0.082	34
2,242	5 00	4.81	6.64	3.44	0.085	34
2,300	5 11	5.08	6.81	3.57	0.087	34
2,400	5 30	5.62	7.15	3.79	0.092	34
2,500	5 49	6.19	7.50	4.01	0.097	4
2,552	6 00	6.50	7.67	4.13	0.100	41
2,600	6 08	6.79	7.85	4.23	0.102	44
2,700	6 27	7.41	8.21	4.45	0.107	44
2,800	6 46	8.06	8.58	4.67	0.112	44
2,865	7 00	8.51	8.82	4.83	0.115	44
2,900	7 06	8.76	8.95	4.90	0.117	5
3,000	7 26	9.48	9.33	5.13	0.123	54
3,100	7 46	10.24	9.72	5.36	0.129	54
3,165	8 00	10.74	9.97	5.53	0.132	54
3,200	8 06	11.02	10.11	5.59	0.134	54
3,300	8 26	11.83	10.50	5.83	0.140	54
3,400	8 46	12.66	10.89	6.07	0.146	6
3,465	9 00	13.22	11.14	6.23	0.150	64
3,500	9 06	13.53	11.28	6.31	0.152	64
3,600	9 27	14.44	11.67	6.55	0.158	64
3,700	9 48	15.40	12.06	6.79	0.164	64
3,757	10 00	16.00	12.29	6.94	0.168	7
3,800	10 09	16.38	12.45	7.04	0.170	7
3,900	10 31	17.40	12.85	7.30	0.176	74
4,000	10 55	18.51	13.25	7.58	0.182	74
4,020	11 00	18.75	13.33	7.65	0.183	74
4,100	11 20	19.69	13.65	7.88	0.188	74
4,200	11 45	20.87	14.06	8.18	0.195	8
4,260	12 00	21.64	14.31	8.36	0.200	84
4,300	12 10	22.15	14.47	8.48	0.202	84
4,400	12 35	23.45	14.89	8.78	0.209	84
4,500	13 00	24.74	15.31	9.08	0.216	9
4,600	13 25	26.09	15.74	9.38	0.223	94
4,700	13 51	27.50	16.18	9.69	0.230	94
4,735	14 00	27.99	16.33	9.81	0.233	94
4,800	14 17	28.94	16.62	10.01	0.237	94
4,900	14 43	30.42	17.07	10.33	0.244	10
4,963	15 00	31.40	17.30	10.55	0.249	104
5,000	15 10	31.97	17.53	10.66	0.252	104

NOTE.—The line of sight is parallel to line of fire when the sliding-leaf is two (2) full turns from the outer edge, and from construction of sight will not allow for drift at a greater range than 2,900 yards.

* Limit of sliding-leaf for 60-pounder.

RANGE TABLE.*

Class of gun	20-pounder, B. L. R. (bronze).	Permanent angle of deflection for tangent sight	29° 12'.
Charge of powder	2 pounds, cannon.	Distance between sights	24.23 in.
Kind of projectile	Service shell, lead banded.	Angle of jump, broadside carriage	0° 24'.
Weight of projectile	18 pounds, filled.	Initial velocity of shell	1,070 ft. sec.

[Ranges referred to the horizontal plane through the trunnions.]

Range.	Angle of elevation.	Drift.	Time of flight.	Marks on the sight-bar.	Range.	Angle of elevation.	Drift.	Time of flight.	Marks on the sight-bar.
Yards.	° ' "	Yards.	Seconds.	Inches.	Yards.	° ' "	Yards.	Seconds.	Inches.
400	0 42	1.4	1.3	0.231	1,800	4 43	7.6	5.8	1.981
500	0 55	1.6	1.6	0.348	1,892	5 00	8.1	6.1	2.119
540	1 00	1.7	1.7	0.423	1,900	5 03	8.2	6.2	2.120
600	1 09	1.9	1.9	0.468	2,000	5 23	8.9	6.6	2.263
700	1 26	2.2	2.3	0.588	2,100	5 44	9.5	7.0	2.410
800	1 42	2.6	2.6	0.709	2,177	6 00	10.0	7.3	2.546
900	1 58	2.9	2.9	0.831	2,200	6 05	10.2	7.4	2.562
910	2 00	3.0	2.9	0.846	2,300	6 28	11.0	7.8	2.719
1,000	2 15	3.3	3.2	0.953	2,400	6 52	11.9	8.2	2.882
1,100	2 32	3.8	3.5	1.076	2,430	7 00	12.3	8.3	2.973
1,200	2 49	4.3	3.8	1.200	2,500	7 17	13.0	8.6	3.055
1,240	3 00	4.5	4.0	1.270	2,600	7 42	14.3	9.0	3.238
1,300	3 07	4.8	4.1	1.326	2,673	8 00	15.9	9.3	3.405
1,400	3 25	5.3	4.4	1.454	2,700	8 07	16.4	9.4	3.428
1,500	3 44	5.9	4.8	1.583	2,800	8 33	19.3	9.8	3.627
1,587	4 00	6.3	5.1	1.694	2,900	9 00	22.9	10.2	3.837
1,600	4 03	6.4	5.2	1.713	3,000	9 28	26.6	10.6	4.047
1,700	4 23	7.0	5.5	1.846	3,100	10 00	30.4	11.1	4.272

* By Lieut. J. R. Selfridge, U. S. N.

RANGE TABLE.*

Class of gun 3-inch B. L. R. (howitzer).
 Charge of powder 16 ounces, cannon.
 Kind of projectile Shell.
 Weight of projectile 7 pounds, filled.

Permanent angle of deflection for tangent sight 2° 40' 00".
 Distance between sights 19.06 inches.
 Angle of jump 0° 29' 25".
 Initial velocity 1,246 ft. sec.

[Ranges referred to the horizontal plane through the trunnions.]

Range.	Elevation.	Time of flight.	Drift.	Marks on the sight-bar.	Range.	Elevation.	Time of flight.	Drift.	Marks on the sight-bar.
<i>Yards.</i>	<i>° ' "</i>	<i>Seconds.</i>	<i>Yards.</i>	<i>Inches.</i>	<i>Yards.</i>	<i>° ' "</i>	<i>Seconds.</i>	<i>Yards.</i>	<i>Inches.</i>
100	- 0 05 24	.31	.015	- 0.02	2,846	8 00 00	9.75	18.45	2.68
200	+ 0 07 48	.62	.059	+ 0.05	2,900	8 15 00	9.98	19.24	2.76
300	0 0 21 36	.93	.128	0.12	3,000	8 40 12	10.40	20.90	2.90
400	0 35 24	1.24	.237	0.19	3,083	9 00 00	10.75	22.48	3.02
500	0 49 12	1.56	.374	0.26	3,100	9 06 00	10.82	22.66	3.05
579	1 00 00	1.85	.471	0.33	3,200	9 31 48	11.25	24.55	3.20
600	1 03 00	1.88	.546	0.34	3,300	9 59 24	11.69	26.51	3.35
700	1 16 48	2.20	.751	0.42	3,305	10 00 00	11.76	26.73	3.36
800	1 31 12	2.51	.995	0.50	3,400	10 27 00	12.13	28.53	3.50
900	1 45 36	2.83	1.27	0.58	3,500	10 55 12	12.50	30.71	3.66
1,000	2 00 00	3.15	1.59	0.66	3,520	11 00 00	12.67	30.83	3.71
1,100	2 14 24	3.47	1.95	0.74	3,600	11 24 00	13.05	32.97	3.83
1,200	2 28 48	3.79	2.36	0.82	3,700	11 54 00	13.53	35.36	4.00
1,300	2 43 48	4.11	2.82	0.90	3,720	12 00 00	13.63	36.02	4.06
1,400	2 58 48	4.44	3.32	0.99	3,800	12 25 12	14.01	37.91	4.18
1,401	3 00 00	4.50	3.40	1.00	3,900	12 57 00	14.51	40.55	4.37
1,500	3 14 24	4.78	3.88	1.08	3,912	13 00 00	14.57	40.98	4.41
1,600	3 30 36	5.12	4.47	1.17	4,000	13 29 24	15.03	43.27	4.56
1,700	3 47 24	5.46	5.11	1.26	4,090	14 00 00	15.51	46.00	4.75
1,762	4 00 00	5.61	5.73	1.33	4,100	14 01 48	15.57	46.17	4.76
1,800	4 04 48	5.80	5.89	1.36	4,200	14 30 36	16.12	39.21	4.97
1,900	4 23 24	6.14	6.67	1.47	4,260	15 00 00	16.46	51.35	5.11
2,000	4 43 12	6.49	7.54	1.58	4,300	15 12 00	16.68	52.41	5.18
2,082	5 00 00	6.70	8.45	1.67	4,400	15 46 48	17.25	55.73	5.40
2,100	5 03 36	6.85	8.57	1.69	4,427	16 00 00	17.38	56.83	5.47
2,200	5 25 12	7.22	9.65	1.81	4,500	16 24 00	17.83	59.18	5.62
2,300	5 46 46	7.59	10.81	1.93	4,587	17 00 00	18.35	62.46	5.83
2,348	6 00 00	7.80	11.43	2.00	4,600	17 01 48	18.42	62.75	5.85
2,400	6 10 24	7.98	12.03	2.06	4,700	17 41 24	19.05	66.52	6.09
2,500	6 36 00	8.37	13.32	2.20	4,740	18 00 00	19.22	68.22	6.20
2,592	7 00 00	8.70	14.68	2.33	4,800	18 21 00	19.68	70.38	6.34
2,600	7 00 36	8.76	14.70	2.34	4,891	19 00 00	20.30	74.16	6.57
2,700	7 25 24	9.16	16.13	2.48	4,900	19 01 12	20.35	74.38	6.59
2,800	7 49 48	9.57	17.66	2.62					

* By Ensign R. F. Nicholson, U. S. N.

RANGE TABLE.*

Class of gun.....3-inch B. L. R. rifle-howitzer.
 Charge of powder.....12 ounces, cannon.
 Kind of projectile.....Shell.
 Weight of projectile.....7 pounds, filled.

Permanent angle of deflection for tangent
 sight..... $2^{\circ} 00' 00''$.
 Distance between sights.....13.75 inches.
 Angle of jump..... $0^{\circ} 55'$.
 Initial velocity of shell.....1,179 ft. sec.

[Ranges referred to the horizontal plane through the trunnions.]

Range.	Elevation.	Time of flight.	Drift.	Marks on the sight-bar.	Range.	Elevation.	Time of flight.	Drift.	Marks on the sight-bar.
Yards.	° ' "	Seconds.	Yards.	Inches.	Yards.	° ' "	Seconds.	Yards.	Inches.
100	- 0 21 00	0.30	0.02	- 0.09	2,700	8 27 00	10.28	15.34	2.02
200	- 0 06 00	0.60	0.07	- 0.03	2,800	8 54 00	10.65	16.67	2.14
240	0 00 00	0.72	0.11	0.00	2,810	9 00 00	10.70	16.81	2.17
300	+ 0 09 00	0.90	0.16	+ 0.03	2,900	9 21 36	11.12	18.07	2.28
400	0 34 36	1.20	0.25	0.09	3,000	9 49 12	11.59	19.52	2.38
500	0 40 48	1.50	0.46	0.16	3,033	10 00 00	11.76	20.03	2.43
600	0 57 36	1.82	0.69	0.23	3,100	10 17 24	12.06	21.04	2.50
610	1 00 00	1.88	0.72	0.24	3,200	10 45 36	12.54	22.60	2.62
700	1 14 24	2.14	0.92	0.30	3,250	11 00 00	12.80	23.43	2.68
800	1 31 12	2.46	1.19	0.37	3,300	11 13 48	13.03	24.25	2.74
900	1 48 36	2.78	1.50	0.44	3,400	11 42 00	13.52	25.93	2.86
900	2 00 00	2.96	1.70	0.48	3,460	12 00 00	13.82	26.97	2.93
1,000	2 06 36	3.10	1.86	0.51	3,500	12 10 12	14.02	27.67	2.98
1,100	2 24 06	3.44	2.28	0.58	3,600	12 38 24	14.52	29.47	3.16
1,200	2 43 12	3.78	2.66	0.65	3,674	13 00 00	14.89	30.85	3.18
1,292	3 00 00	4.10	3.08	0.72	3,700	13 06 36	15.02	31.32	3.22
1,300	3 01 48	4.13	3.13	0.72	3,800	13 34 48	15.53	33.22	3.34
1,400	3 20 24	4.50	3.63	0.80	3,878	14 00 00	15.92	34.87	3.44
1,500	3 39 00	4.89	4.17	0.88	3,900	14 07 12	16.05	35.33	3.47
1,600	3 58 48	5.28	4.77	0.96	4,000	14 41 24	16.58	37.58	3.61
1,605	4 00 00	5.29	4.80	0.97	4,050	15 00 00	16.85	38.80	3.68
1,700	4 19 12	5.68	5.42	1.04	4,100	15 19 12	17.14	40.03	3.77
1,800	4 39 36	6.11	6.11	1.12	4,200	16 00 00	17.70	42.68	3.94
1,900	5 00 00	6.54	6.84	1.20	4,300	16 43 12	18.28	45.49	4.12
2,000	5 22 12	6.98	7.65	1.29	4,338	17 00 00	18.50	46.63	4.18
2,100	5 46 48	7.42	8.55	1.38	4,400	17 28 48	18.88	48.49	4.32
2,143	6 00 00	7.62	8.97	1.43	4,469	18 00 00	19.30	50.63	4.47
2,200	6 12 00	7.87	9.56	1.48	4,500	18 14 24	19.48	51.56	4.58
2,300	6 39 00	8.33	10.58	1.58	4,593	19 00 00	20.05	54.44	4.75
2,374	7 00 00	8.69	11.48	1.67	4,600	19 04 12	20.08	54.66	4.76
2,400	7 06 00	8.79	11.69	1.69	4,700	19 58 48	20.69	57.78	5.00
2,500	7 33 00	9.25	12.83	1.80	4,704	20 00 00	20.71	57.80	5.01
2,600	8 00 00	9.71	14.07	1.91					

* By Ensign R. F. Nicholson, U. S. N.

RANGE TABLE.*

Glass of gun XI-inch smooth-bore. Distance between sights 48 inches.
 Charge of powder 15 pounds, cannon. Initial velocity of shell 1,240 ft. sec.
 Kind of projectile Service-shell.
 Weight of projectile 135.6 pounds, filled.

[Ranges referred to the horizontal plane through the trunnions.]

Range.	Angle of elevation.	Time of flight.	Angle of fall.	Remaining velocity.	Dangerous zone for vessels.	Ordnates of the trajectory.	Co-ordinates of the highest points of the trajectory.			Marks on the sight-bar (side).	Marks on the sight-bar (central).
							x	y			
Yards.	°	'	Secs.	°	'	Ft. sec.	Feet.	Yards.	Yards.	Inches.	Inches.
400	0	49	1.1	0	54	1,048	1,200	168	240	1	0.627
500	1	03	1.4	1	12	1,000	1,500	208	300	2	0.806
600	1	17	1.7	1	31	967	1,800	247.4	360	4	0.985
700	1	33	2.0	1	52	929	N, 1,500	284.6	420	5	1.191
800	1	49	2.3	2	16	884	N, 505	321	480	7	1.474
900	2	07	2.6	2	41	801	427	357	540	9	1.725
1,000	2	25	3.0	3	09	830	303	391.4	600	11	1.985
1,100	2	45	3.4	3	40	799	312	428	660	14	2.213
1,200	2	05	3.7	4	13	771	271	456	720	18	2.370
1,300	2	27	4.1	4	49	744	237	485	780	22	2.552
1,400	2	50	4.5	5	28	718	209	513.2	840	27	2.753
1,500	4	14	5.0	6	10	693	185	539.7	900	33	2.935
1,600	4	39	5.4	6	55	669	165	564	960	41	3.179
1,700	5	05	5.9	7	45	647	147	585.8	1,020	50	3.414
1,800	5	33	6.4	8	40	625	131	605	1,080	59	3.697
1,900	6	03	6.9	9	44	605	116	624	1,140	68	4.065
2,000	6	34	7.4	10	48	585	105	637	1,200	78	4.485
2,100	7	06	7.9	11	57	566	95	649	1,260	89	4.940
2,200	7	40	8.4	13	11	547	86	657.8	1,320	100	5.421
2,300	8	16	9.0	14	30	528	77	663	1,380	111	5.923
2,400	8	53	9.6	15	53	513	71	664.8	1,440	122	6.447
2,500	9	33	10.2	17	30	497	64	665	1,500	134	7.003
2,600	10	14	10.9	19	01	482	58	658	1,560	150	7.594
2,700	10	57	11.6	20	01	467	54	648.7	1,620	172	8.213
2,800	11	42	12.3	22	36	453	48	634.5	1,680	195	8.861
2,900	12	29	13.0	24	32	439	44	615.8	1,740	229	9.541
3,000	13	18	13.7	26	33	426	40	595.5	1,800	249	10.250
3,100	14	09	14.5	27	38	413	38	562.8	1,860	275	11.003
3,200	15	02	15.3	29	42	401	35	528	1,920	303	11.817
3,300	15	57	16.2	31	45	389	32	487.3	1,980	336	12.575
3,400	16	55	17.1	34	17	377	29	440	2,040	375	13.382
3,500	17	55	18.1	36	55	365	27	387	2,100	417	14.226
3,600	18	57	19.1	39	45	356	24	325.5	2,160	460	15.108
3,700	20	01	20.1	41	37	346	22	257	2,220	506	16.030
3,800	21	07	21.2	43	59	336	20	179	2,280	555	16.994
3,900	22	16	22.3	47	03	326	18	95	2,340	610	18.016
4,000	23	27	23.5	49	27	317	17	0	2,400	665	19.086

*Computed by Lieut. J. R. Selfridge, U. S. N.

†Average height of vessel, 20 feet.

RANGE TABLE.*

Class of gun IX-inch smooth-bore. Distance between sights 39 inches.
 Charge of powder 10 pounds, cannon. Initial velocity of shell 1,320 ft. -sec.
 Kind of projectile Service-shell.
 Weight of projectile 73.5 pounds, filled.

[Ranges referred to horizontal plane through the trunnions.]

Range.	Angle of elevation.	Time of flight.	Angle of fall.	Remaining velocity.	Dangerous zone for vessels.	Ordnate of the trajectory.	Co-ordinates of the highest point of the trajectory.		Marks on the sight-bar.
							x	y	
<i>Yards.</i>	° ' "	<i>Seconds.</i>	° ' "	<i>Foot-sec.</i>	<i>Feet.</i>	<i>Yards.</i>	<i>Yards.</i>	<i>Yards.</i>	<i>Inches.</i>
400	0 44	1.0	0 51	1,048	1,200	141.6	240	1.	0.572
500	0 57	1.3	1 09	1,017	1,500	183.4	300	2.	0.740
600	1 11	1.6	1 28	967	1,800	217.6	360	3.	0.919
700	1 27	1.9	1 50	922	2,100	250.8	420	5.	1.123
800	1 43	2.3	2 14	880	2,400	314.0	480	6.8	1.327
900	2 00	2.6	2 42	840	2,700	314.2	540	8.	1.541
1,000	2 19	3.0	3 13	803	3,000	343.1	600	11.	1.780
1,100	2 39	3.4	3 47	768	3,300	371.1	660	15.	2.030
1,200	3 00	3.8	4 24	735	3,600	397.3	720	18.	2.291
1,300	3 23	4.2	5 06	700	3,900	421.9	780	23.	2.574
1,400	3 47	4.6	5 52	674	4,200	444.6	840	28.	2.868
1,500	4 13	5.1	6 43	646	4,500	464.8	900	34.	3.184
1,600	4 40	5.6	7 37	620	4,800	483.0	960	42.	3.511
1,700	5 09	6.1	8 37	595	5,100	498.6	1,020	50.	3.858
1,800	5 40	6.6	9 44	571	5,400	511.6	1,080	60.	4.226
1,900	6 13	7.1	10 17	548	5,700	521.5	1,140	72.	4.615
2,000	6 48	7.7	12 16	527	6,000	528.2	1,200	84.	
2,100	7 26	8.3	13 40	507	6,300	531.3	1,260	97.	
2,200	8 06	8.9	15 09	488	6,600	531.0	1,320	103.	
2,300	8 48	9.6	16 49	469	6,900	526.3	1,380	122.	
2,400	9 32	10.3	18 39	452	7,200	517.3	1,440	142.	
2,500	10 19	11.0	20 25	435	7,500	503.6	1,500	162.	
2,600	11 09	11.7	21 53	419	7,800	484.8	1,560	184.	
2,700	12 02	12.5	24 20	403	8,100	460.4	1,620	209.	
2,800	12 57	13.3	26 08	386	8,400	430.0	1,680	237.	
2,900	13 55	14.2	29 20	370	8,700	394.0	1,740	268.	
3,000	14 57	15.1	31 33	358	9,000	350.3	1,800	301.	
3,100	16 01	16.0	34 22	348	9,300	300.0	1,860	338.	
3,200	17 08	17.0	37 12	338	9,600	241.0	1,920	375.	
3,300	18 18	18.1	40 08	325	9,900	173.3	1,980	420.	
3,400	19 33	19.3	43 48	314	10,200	97.0	2,040	475.	
3,500	20 59	20.6	48 18	304	10,500	00.0	2,100	531.	

* Computed by Lieut. J. R. Selfridge, U. S. N.

† Average height of vessel, 20 feet.

XV-INCH GUN.

Weight of shot 450 pounds. Kind of powder Mammoth.
 Diameter of shot 14.89 inches.

Powder-charge.		Powder-charge.		Powder-charge.		Powder-charge.		Powder-charge.		Powder-charge.	
Initial velocity.		Initial velocity.		Initial velocity.		Initial velocity.		Initial velocity.		Initial velocity.	
<i>Lbs.</i>	<i>Ft.-secs.</i>	<i>Lbs.</i>	<i>Ft.-secs.</i>	<i>Lbs.</i>	<i>Ft.-secs.</i>	<i>Lbs.</i>	<i>Ft.-secs.</i>	<i>Lbs.</i>	<i>Ft.-secs.</i>	<i>Lbs.</i>	<i>Ft.-secs.</i>
35	931	46	1,087	57	1,199	68	1,294	79	1,381	90	1,458
36	948	47	1,098	58	1,208	69	1,302	80	1,388	91	1,465
37	965	48	1,109	59	1,217	70	1,310	81	1,395	92	1,472
38	981	49	1,120	60	1,226	71	1,318	82	1,402	93	1,479
39	997	50	1,130	61	1,235	72	1,326	83	1,409	94	1,486
40	1,012	51	1,140	62	1,244	73	1,334	84	1,416	95	1,493
41	1,026	52	1,150	63	1,253	74	1,342	85	1,423	96	1,500
42	1,039	53	1,160	64	1,262	75	1,350	86	1,430	97	1,507
43	1,051	54	1,170	65	1,270	76	1,358	87	1,437	98	1,514
44	1,063	55	1,180	66	1,278	77	1,366	88	1,444	99	1,520
45	1,075	56	1,190	67	1,286	78	1,374	89	1,451	100	1,526

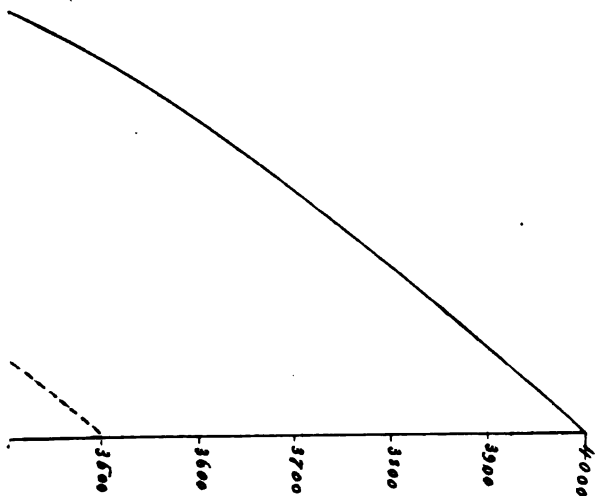
Cubical powder, specific gravity 1.735, and granulation of 74 to the pound, gave in this gun, when fired in a charge of 100 pounds to 450 pounds of shot, a pressure of 25,250 pounds to the square inch and an initial velocity of 1,546 foot-seconds.

Table of elements for various guns of the United States Navy.

Style of gun.	Caliber of gun.	Charge of powder.	Kind of powder.	Weight of projectile.	Initial velocity of projectile.	Weight of the gun.	Weight of the carriage.	Muzzle energy.				Energy of the gun's recoil.	Energy of recoil of gun and carriage.	Initial velocity of gun and carriage.
								Total.	Per pound of gun.	Per pound of powder.	Per inch of shot's circumference.			
	Inches.	Pounds.		Pounds.	Ft. sec.	Pounds.	Pounds.	Ft. tons.	Ft. tons.	Ft. t.	Ft. tons.	Ft. tons.	Ft. tons.	Ft. sec.
Rifle, muzzle-loading.....	8	20	Hexagonal..	180	1,250	17,000	3,780	1,932	0.115	1.6	77.7	23.0	18.8	11.4
Rifle, muzzle-loading.....	8	35	do.....	180	1,450	17,000	3,780	2,627	0.135	75.1	104.5	33.5	27.4	13.8
Smooth-bore, muzzle-loading.....	xv	100	do.....	450	1,600	42,000	7,350	7,997	0.180	80.0	192.7	105.8	90.0	16.2
Smooth-bore, muzzle-loading.....	x1	20	Cannon.....	166	1,052	16,000	3,780	1,300	0.081	65.0	37.6	15.2	12.3	9.4
Smooth-bore, muzzle-loading.....	x1	15	do.....	138	1,240	16,000	3,780	1,432	0.091	96.8	42.0	18.7	11.1	9.0
Smooth-bore, muzzle-loading.....	ix	10	do.....	70	1,220	9,000	1,300	847	0.084	84.7	28.9	9.5	6.6	9.6
Rifle (Parrott), muzzle-loading.....	6.4	10	Rifle.....	100	1,080	9,700	1,300	810	0.083	81.0	40.6	9.3	8.1	10.3
Rifle (Parrott), muzzle-loading.....	6.4	8	do.....	80	1,140	9,700	1,300	573	0.059	71.7	28.7	8.1	7.1	8.7
Rifle (Parrott), breech-loading.....	6.4	10	do.....	80	1,250	9,700	1,300	868	0.089	86.8	43.5	9.9	8.8	11.9
Rifle (Howitzer), breech-loading.....	3	1	Cannon.....	7	1,140	500	535	63	0.123	63.1	68.7	1.0	0.5	8.3
Rifle (Howitzer), breech-loading.....	3	1	do.....	7	1,087	350	410	57	0.164	76.5	66.1	1.3	0.6	10.5

* Top-carriage.

1 in Guns



Ordnance allowance of weights going with various naval guns, November, 1874.

How mounted.	8-inch muzzle-loading rifle.	11-inch muzzle-loading smooth-bore.	13-inch muzzle-loading smooth-bore.	20-pounder breech-loading rifle.	3-inch breech-loading howitzer (heavy).	3-inch breech-loading howitzer (light).	12-pounder muzzle-loading smooth-bore howitzer (heavy).	12-pounder muzzle-loading smooth-bore howitzer (light).	Field with caisson.
Gun.	Pivot, cen. comp. iron.	Pivot, cen. comp. iron.	Broadside. M. ally.	Pivot. D. bar. iron.	Field, iron.	Field, iron.	Field and howitzer.	Field and howitzer.	Field with caisson.
Carriage.	18,000 lbs.	16,000 lbs.	9,500 lbs.	5,500 lbs.	500 lbs.	320 lbs.	750 lbs.	430 lbs.	130 lbs.
Shells.	7,500 lbs.	7,500 lbs.	1,500 lbs.	1,940 lbs.	825 lbs.	450 lbs.	1,187 lbs.	654 lbs.	282 lbs.
Powder.	20,250 lbs.	16,110 lbs.	6,250 lbs.	8,040 lbs.	96 lbs.	751 lbs.	1,187 lbs.	654 lbs.	282 lbs.
Equipment, including tanks.	2,000 lbs.	2,805 lbs.	1,222 lbs.	1,124 lbs.	12,000 lbs.	75 lbs.	1,187 lbs.	654 lbs.	282 lbs.
Shot, round and long.	4,701 lbs.	6,355 lbs.	1,372 lbs.	1,346 lbs.	825 lbs.	287 lbs.	1,187 lbs.	654 lbs.	282 lbs.
Cannon and grise.	825 lbs.	1,660 lbs.	910 lbs.	1,110 lbs.					87 lbs.
One set ammunition with equipments.		1,829 lbs.	720 lbs.						1,750 lbs.
Total weights.	33,046 lbs.	52,259 lbs.	21,872 lbs.	19,069 lbs.		1,888 lbs.	3,421 lbs.	2,494 lbs.	3,258 lbs.

* 100 rds.

† Saluting.

‡ 25,000 ball-cartridges included.

ORDNANCE OFFICE, NAVY-YARD,
Washington, D. C., June 22, 1878.

SIR: I have the honor to submit the following report of experiments made in obedience to the commandant's order of May 1, 1878, on the subject of firing a line from the 20-pounder breech-loading rifle.

I am, sir, your obedient servant,

W. M. FOLGER,
Lieutenant-Commander, U. S. N.

Lieut. Commander A. S. CROWNINSHIELD,
Inspector of Ordnance.

Approved and respectfully forwarded for the information of the Bureau of Ordnance.

A. S. CROWNINSHIELD,
Lieutenant-Commander and Inspector of Ordnance.

Summary of preliminary experiments made during the months of May and June, 1878, with the 20-pounder breech-loading rifle, to ascertain its capability for throwing a line as a torpedo-drag, and for life-saving purposes.

ORDNANCE OFFICE, NAVY-YARD,
Washington, D. C., June 20, 1878.

PROJECTILE.

The projectile to be used as a grapnel is slightly shorter than the 20-pounder shell, square headed—in order to drive the slack line in the bore clear—provided with the usual leaden band, and having a longitudinal groove in which to lay the line or connecting arrangement, which was secured to the base of the projectile. This groove was cut through the lead band, and the edges of the latter beveled off to counteract the tendency to “fill in” on firing. (Vide Fig. 2a.)

The grapnel proper, represented in plate, Figs. 1 and 2, is of wrought iron having four flukes hinged into the end of a bar 15 inches in length and 1 inch in diameter, which is screwed into the solid metal of the head of the projectile. After firing, upon hauling home, these flukes open and cover an area of about 100 square inches. They should fit, when closed, with such friction that a pull of 5 pounds should take them forward in order that they may not be displaced in the bore of the piece.

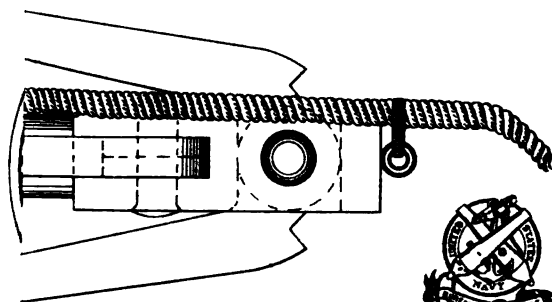
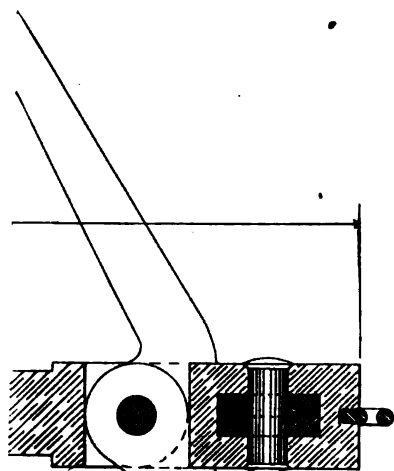
The base of the shot (hollowed for its reception) was provided with what may be called a “spiral spring swivel.” The projectile so fitted, without the grapnel, weighs 20 pounds; provided with the grapnel, 25 pounds.

THE CONNECTIONS.

Various contrivances for connecting the line to the shot were proposed and experimented upon as follows, viz:

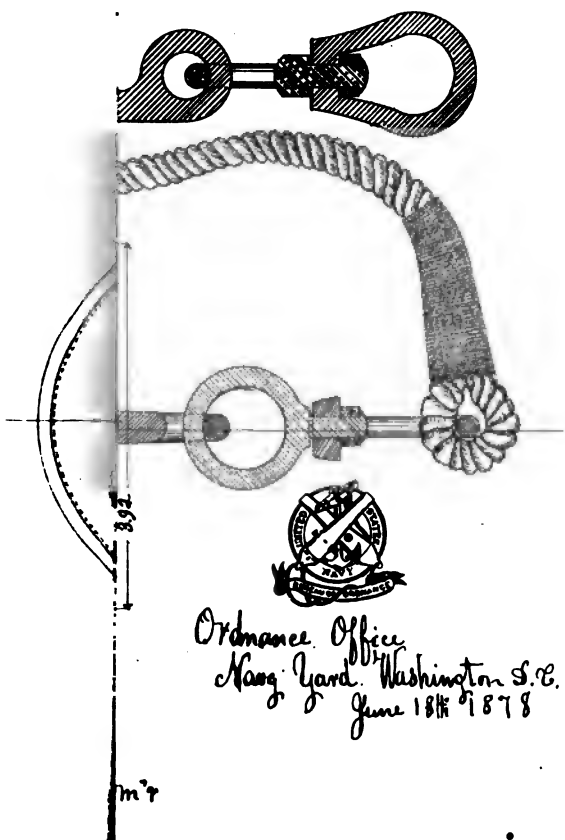
1. A length of flexible wire rope (tiller-rope), half an inch in diameter, sufficient to reach to the muzzle, was secured to the swivel, using copper wire for the seizing; the latter was increased in strength by filling all parts with solder. Another small wrought-iron swivel was placed at the other or line end in every case.

2. A strand of hide rope, six-tenths of an inch in diameter, was laid up, having increased strength at the short end.



Ordnance Office
 Navy Yard Washington D.C.
 June 21st 1878

W. M. Folger
 Asst. Com'r



3. A strand of copper wire, six-tenths of an inch in diameter, fitted with a Flemish eye at each end.

4. A number of strands of wire rope, laid up in what is called "selvage fashion," making a diameter of half an inch.

5. The end of the line, strengthened by the addition of strands of linen twine laid about it, was connected directly with the swivel in the base of the projectile.

6. A wrought-iron bar, the length of the shot and twenty-five hundredths of an inch in diameter, was welded into the base shackle.

THE LINE.

The line used was of braided hemp, 1.5 inches in circumference; of a tensile strength of 1,000 pounds; weighing 1.4 ounces per yard. It was borrowed from the Department of Navigation in this yard, and is such as is used in the heading of signals in the United States Navy. The wrought-iron bar and that portion of the line lying in the bore of the gun, when loaded, are wrapped with strips of sheeting until a diameter of half an inch is obtained, and the whole well drenched with water before firing. The line was "French-faked" on the left side of the piece, but it is intended that the English faking-box, at present in use in the Life-Saving Service, be recommended for this purpose.

THE CARTRIDGE.

Lot 2, No. 7 rifle-powder, was used throughout the trials. Various charges were experimented with, weighing from 4 to 8 ounces, with the 20-pound projectile. It was found that a charge one-fortieth of the weight of the shot could be used with safety. For ordinary short ranges, as would probably be desired when using the grapnel, a weight of 5 ounces, or one hundredth, is sufficient. The remaining powder-space was filled with a wooden sabot faced with a wrought-iron plate twenty-five hundredths of an inch in thickness.

Early in the course of the firing it was discovered that, while the 20-pound projectile was well calculated to fulfill all desired ends as a torpedo drag, a greater weight of projectile was necessary to attain results in range that might be favorably compared with those reported by the United States Life-Saving Service; and the shot was lengthened 4 inches, giving a weight of about 32 pounds. (Figs. 3 and 4.)

The result of the trials of the various connections mentioned above, showed that the inertia incident upon the "throwing-back" action, as the shot leaves the muzzle, necessitated great strength and all possible elasticity at this point, the base of the projectile; and the plan marked seven—the wrought-iron bar increased in diameter to thirty-five hundredths of an inch—was definitely adopted as giving the best results. To decrease the inertia, the length of the connecting arrangement was shortened to that of the groove in the projectile.

It will be observed that the left rear end of the groove in the projectile is cut away. This is to allow the bar to drop freely, it being discovered that the wrench incident upon the rotating motion of the projectile causes the bar to strain badly at this point.

TRIAL WITH THE GRAPNEL SHOT OR TORPEDO DRAG.

A short range being desired, but 5 ounces of powder were used.

Number of rounds.	Elevation.	Charge.	Range.
	0	<i>Ounces.</i>	<i>Yards.</i>
1.....	20	5	240
2.....	20	5	230
3.....	20	5	232
4.....	20	5	231
5.....	20	5	235
			51168
Mean			233

REMARKS ON FIRING TRIAL.

The flukes fly forward on leaving the gun by the action of the rotation of the projectile, and remain so during its flight. The grapnel shot was also thrown into the river and dragged a number of times up stream and down, into deepening water and the contrary, and the flukes never failed to open in all cases. In placing the projectile in the gun, the line should lie on the right side of the bore, in order to drop clear on leaving the gun.

FIRING TRIAL WITH THE LIFE-SAVING SHOT.

The various trials gave as a safe limit for the weight of the charge thirteen ounces for the line furnished for the experiments. A series of eight shots furnished the following results:

Number of rounds.	Elevation.	Charge.	Range.
	0	<i>Ounces.</i>	<i>Yards.</i>
1.....	25	13	429
2.....	25	13	385
3.....	25	13	415
4.....	25	13	429
5.....	25	13	409
6.....	25	13	390
7.....	25	13	415
8.....	25	13	409
			83255
Mean			407

The experiments were discontinued at this point awaiting information in regard to the line used by the United States Life-Saving Service, June 22, 1878. The bureau, upon satisfactory information being obtained, purchased a quantity of line from the Silver Lake Company of Boston, which was experimented with on June 21, 1878. The dimensions are as follows:

Weight per yard.....	417 grains.
Diameter	0.25 inch.
Tensile strength.....	640 pounds.

This line proved to be quite stiff, having apparently been dressed with some oily or soap substance in order to eliminate friction. When manufactured for commercial purposes it is used for window-sash cord.

The lack of flexibility caused it to "kink" very badly, and 5 of the 10 shots fired were unsuccessful, the line parting.

Toward the latter part of the trial this difficulty was in a measure obviated, the line becoming softer. The following is the record of the successful shots :

Number of rounds.	Elevation.	Charge.	Range.	Remarks.
	°	Ounces.	Yards.	
1.....	25	13	410	Line kinked very badly.
2.....	25	13	425	Do.
3.....	25	13	430	Do.
4.....	25	13	462	Line kinked.
5.....	25	13	450	Do.
			5)2177	
Mean.....			435	

This "kinking," doubtless, shortened the range to a considerable extent, and it is respectfully suggested that an attempt be made to remedy the defect by drenching the line in warmed water, and subsequently drying, before further experiments are made.

Respectfully submitted.

W. M. FOLGER,
Lieutenant-Commander, U. S. N.

UNITED STATES RECEIVING-SHIP WABASH,
Navy-Yard, Boston, July 23, 1878.

SIR: I respectfully submit the results of the experiments made with the anchor-shot on Saturday, the 20th of this month.

OFF PEDDOCK'S ISLAND, BOSTON HARBOR,
July 20, 1878.

Gun, 32-pounder, 33 cwt. Junk-wad behind shot at each fire. Line used, whale-line, 2 $\frac{3}{4}$ inch. Elevation of gun, about 12°; wind across line of fire, force from 3 to 4.

Fires.	Weight of powder.		Weight of shot.	Length of line thrown straight.	Slack line.	Total fathoms.	Remarks.
	Lbs. Oz.	Pounds.	Fathoms.	Fathoms.			
1.....	1	7 $\frac{8}{8}$	94	15		110	Line broke close to shot.
2.....	1 2	7 $\frac{8}{8}$	112	18		130	
3.....	1 6	7 $\frac{8}{8}$					
4.....	1 4	7 $\frac{8}{8}$	127	15		142	
5.....	1 6	7 $\frac{8}{8}$	137	10		147	
6.....	1 8	7 $\frac{8}{8}$	150	10		160	
7.....	1 10	7 $\frac{8}{8}$	160	15		175	
8.....	1 10	7 $\frac{8}{8}$	157	15		172	
9.....	1 14	7 $\frac{8}{8}$	157	15		172	

It will be seen from the above table that proportional increased range was not obtained with increased charges of powder, owing to the necessity of using the same line for all the discharges. The line became heavier with water at each fire, and consequently offered greater resistance. With a dry line and a charge of 1 pound 10 ounces of powder, the shot

would carry the line more than 200 fathoms. With a 9-inch gun and a shot weighing 150 pounds, there would be, in my opinion, no difficulty in throwing 400 or more fathoms of 3-inch line, and securely anchoring it to the shore.

So far, the only expense entailed has been \$40 for the line; but as I am to be retired from the command of this ship on the 15th of August, I will be unable to furnish shot for more experiments.

As this is a subject that may, when practically demonstrated, cause the saving of many lives, I respectfully urge upon the bureau that the inspector of ordnance at this station may be instructed to make some shot weighing 100 pounds, and continue the experiments. The 400 fathoms of line is as good as when first used by us, and a 100-pound shot fired from the 32-pounder, now mounted on the anchor-hoy, will, I feel confident, carry 300 fathoms of line.

Very respectfully, &c.,

R. CHANDLER,
Captain, Commanding.

Commodore WM. N. JEFFERS, U. S. N.,
Chief of the Bureau of Ordnance, Navy Department,
Washington, D. C.

UNITED STATES NAVY-YARD, BOSTON, MASS.,
Ordnance Office, July 23, 1878.

SIR: In obedience to your orders, I witnessed the experiments with the "Chandler anchor-shot," on the 20th instant, and have to report as follows:

The same gun and line were used as at previous trials. The same style of shot was used, differing only in weight, and also in place of small bolt in head of shot there is a hole bored $1\frac{1}{2}$ inches in depth and diameter, to receive staff, to which the line is secured, to prevent its fouling in the gun. The staff used was 4 feet 6 inches in length, 2 inches diameter.

No. 1 fire.—Weight of shot, 79 pounds; charge, 1 pound; elevation, 26° ; 94 fathoms line thrown out; shot fell about 3 fathoms short of beach.

No. 2 fire.—Charge, 1 pound 2 ounces; 112 fathoms line thrown out; shot struck just at water's edge on beach.

No. 3 fire.—Charge, 1 pound 6 ounces; wire pennant parted; found shot about 700 yards from gun.

No. 4 fire.—Charge, 1 pound 4 ounces; shot struck at water's edge; run out 127 fathoms line.

No. 5 fire.—Charge, 1 pound 6 ounces; shot struck at water's edge; 140 fathoms line out.

No. 6 fire.—Charge, 1 pound 8 ounces; shot struck at water's edge; 150 fathoms line out.

No. 7 fire.—Charge, 1 pound 10 ounces; shot landed on beach; lower arm closed; when hauled on, shot was dragged home; 160 fathoms line out.

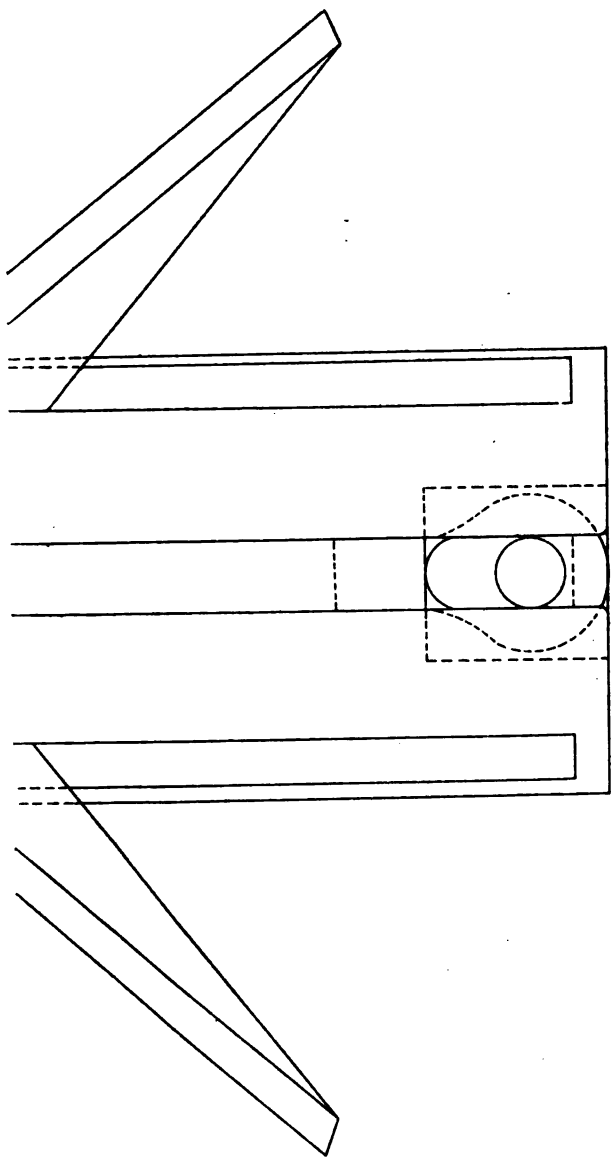
No. 8 shot.—Charge 1 pound 10 ounces; whale-line made fast to shot; served over with wet serving for 4 feet from base of shot; 160 fathoms line thrown out.

No. 9 fire.—Charge, 1 pound 14 ounces; line made fast directly to shot as in No. 8; 160 fathoms line thrown out; force of wind varied from 2 to 4 during firing; wind diagonally across line of fire and off shore.

Very respectfully,

GEO. F. F. WILDE,
Lieutenant-Commander, U. S. N.

Commander B. B. TAYLOR, U. S. N.,
Inspector Ordnance.



ORDNANCE OFFICE,
Navy-Yard, Washington, D. C., June 28, 1878.

SIR: In obedience to your order of May 29, 1878, we have to make the following description, as well as report of the trial, of the Bailey machine-gun. The gun was presented on the 19th instant at this department.

DESCRIPTION.

The Bailey gun has but one barrel of one-inch caliber, mounted on the ordinary small Gatling carriage. The mechanism for operating the gun is immediately in rear of the barrel, and is arranged in an iron and bronze frame, and is quite compact. The accompanying drawing gives sectional views of the gun and mechanism.

The *carrier* or tray A, immediately in rear of the barrel, is given a lateral motion by a lever operated by two cams on the wheel B. The cartridges fall into the *carrier* or tray, and are transferred in succession before the *lock* C, by which they are forced into the chamber, fired, and the empty shell extracted. The *lock*, working in suitable guides, is fitted with a ratchet on its lower side, into which works a cogged portion of the wheel B. It is seen that a partial revolution of this wheel will give the lock either a forward or backward movement, accordingly to its direction. The wheel B is worked by a crank on the right side of the piece; but from the nature of the mechanism it does not have an all-round motion; it being necessary to first give it a partial revolution (to the right) by which the lock is run forward, then a reverse motion which draws back the lock.

The block D, moving in guides, has a perpendicular motion which is given it by another cogged portion of the wheel B working into a ratchet on its right side. The lock in its forward and backward movements passes over this block. The moment the rear end of the lock, in its forward movement, has passed the block D, the latter moves up behind the lock; its object being to support and receive the thrust due to the shock of the discharge.

The firing-pin E is drawn back by the shoulder *e* catching over the *dog* or small piece of steel *f* as the lock moves forward, thus retaining the firing-pin and compressing the spiral spring *g*. The pin is released by a small projection, *h*, on the block D, which, by the upward motion of the latter, forces up the *dog* *f*, the pin flying forward and exploding the cartridge.

A short spring-extractor on the forward end of the lock withdraws the empty shell, which drops by gravity through the open space provided for that purpose.

The operation of the mechanism is as follows:

A cartridge falls through the feeding-port in the top of the piece into the tray or carrier; the crank is given a partial revolution from left to right; at the beginning of this movement one of the cams on the wheel B immediately operates to move the tray with its carriage in front of the lock; the latter then receives its forward movement, forcing the cartridge into the barrel; the block D rises the moment the rear end of the lock has passed it, the small projection *h* releasing the firing-pin at the moment the block reaches its extreme upward movement, when it is also in position to support the lock. The tray is moved back to its original position by a second cam on the wheel B; this movement occurs when the cartridge is nearly entered into the barrel. A reverse movement of the crank moves the lock to the rear, extracting the empty

shell, and making way for the tray to bring another cartridge into place for loading.

The ammunition presented by Mr. Bailey was fixed, brass case; lead bullet, 2".03 long and 1".007 diameter, weighing 4,903 grains; charge, 472.4 grains.

Ammunition was also presented for trial with a shorter bullet, .818" in length, between which and the powder were 15 spherical lead balls of .455" diameter, each weighing 141 grains.

Total length of cartridge, 4".75; diameter of cartridge near butt, 1".08.

The gun and carriage were weighed separately:

	Pounds.
Weight of gun (barrel alone 24 pounds 2 ounces 26 grains)	86
Weight of carriage	263
Total	349

TRIAL, JUNE 20, 1878.

The piece was first aimed at the 1,300-yard target. Four shots were fired to get the range (the gun not being sighted or ranged), which was readily obtained, an observer being stationed near the target to signal results.

The inventor was then requested to fire 100 shots as rapidly as possible at the 1,300-yard target. The firing began, Mr. Bailey at the crank, but was brought to a sudden close at the fourth shot by the breaking short off of that portion of the mounting called the foot of the saddle. It was of cast iron, and, though T-iron, quite small.

The following points were observed during the limited firing done before the board:

There was a great deal of spring in the carriage, the muzzle of the piece moving in an arc of nearly 3 inches.

The recoil was several inches, destroying aim at each discharge.

The crank appeared to need much forcing on one occasion.

The support of the elevating-screw having given way in the first trial by excessive recoil of the piece, the carriage was repaired for a second trial by bolting a heavy piece of oak under and along the trail, extending a foot on either side of the screw support; the latter was mortised into the oak block to give better security. This oak block extended to the ground, and was of sufficient length to entirely support the trail. Its weight was 92 pounds.

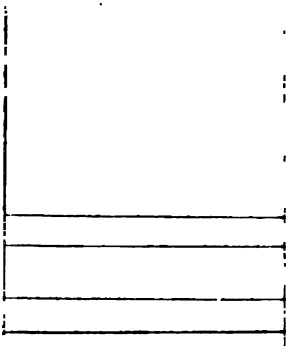
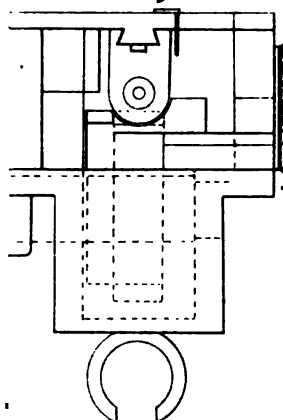
The mounting having been repaired, the trial was proceeded with on June 22, 1878.

The inventor was requested to fire 10 shots for "rapidity of fire" at the 1,300-yard target. After two or three preliminary shots to obtain the range, the inventor, working the piece himself, commenced firing. Time for 8 shots, 31 seconds. At the 8th shot the mechanism became completely locked, necessitating a delay of 9 minutes to clear it. It appeared that a shell had jammed in the barrel so tightly that the lock could not be withdrawn. It was rammed out from forward.

The recoil amounted to 2 or 3 inches at each discharge. The accuracy was very bad, the last shots of this series falling at least 50 or 60 yards to the left and beyond the target.

The inventor was requested to fire 12 shots for rapidity of fire. Time to fire 11 shots, 30 seconds. It was observed that the crank worked with great difficulty, Mr. Bailey being obliged to use much force to make it move through the 180° necessary. This effort threw the piece completely off the line of fire, when the board considered it necessary to ask Mr.

Section through A.B.



Bailey to discontinue, as projectiles were passing in dangerous proximity to Poplar Point.

TRIAL, JUNE 26, 1878.

The firing began, Mr. Bailey at the crank, the cartridges being fed by hand. Two shots were fired, for range, at the 1,300-yard target. The inventor was then requested to fire 12 shots, but at the 11th round firing was stopped on account of the projectiles striking to the left. Time, 56 seconds.

A second series of 12 shots fired; time, 32.4 seconds. At the end of this series the barrel was so hot as to burn the hand. Thirty-five shots were then fired for rapidity of fire; time, 1 minute. The gun was then carried to the edge of the sea-wall, and depressed at an angle of 22° ; depression being chiefly obtained by blocking up the trail, the guide of the elevating-screw not being long enough for natural depression. Twelve shots were fired in 19.8 seconds, the recoil being so violent as to lift the carriage bodily about 2 inches.

The fact that this gun recoils at each shot, and consequently disturbs the sight, is sufficient to destroy its efficacy as a machine-gun; for the object of a machine-gun, *i. e.*, rapidity of fire, is really lost. This point might be corrected by increasing the weight of the frame, carriage, or barrel. Whatever way it is done, it is a *sine qua non* that the piece does not move sufficiently to destroy the aim.

The loading and extracting were not done with desirable certainty, as the record shows.

We do not think the ammunition of a desirable kind, as the lead projectile, weighing half a pound, is of too large a caliber to answer the purposes of a machine-gun, and too small for a repeating cannon, which should be able to fire shell as well as other ammunition.

The feed and extractor require perfecting, and the reversing of the crank, necessary from the nature of the mechanism, we consider very awkward—a motion that interferes very greatly with rapidity of fire.

A paper presented by Mr. Bailey, on the object, resources, &c., of his gun, is appended to this report for the information of the Bureau of Ordnance.

We are, sir, your obedient servants,

A. S. CROWNINSHIELD,
Lieutenant-Commander, U. S. N.

YATES STIRLING,
Lieutenant-Commander, U. S. N.

W. M. FOLGER,
Lieutenant-Commander, U. S. N.

Commodore JNO. C. FEBIGER,
Commandant Navy-Yard, Washington.

To _____.

WASHINGTON, D. C., June 16, 1878.

SIR: In compliance with the rules of the Bureau of Ordnance, dated Washington, February 20, 1875, I herewith submit a statement showing the claims and object of the Bailey single-barrel cannon.

FORTUNE L. BAILEY, *Inventor.*

First. The object of the invention is to furnish a light, serviceable cannon, of any desired caliber, capable of throwing shot, canister, or shell, and so arranged in its mechanism as to be automatic in its operation, and susceptible of being loaded and fired in rapid succession, combining strength of parts and simplicity of construction.

Second. Its lightness of weight, economy of cost, adaptability for great depression, and accuracy of fire at a range of from 2,000 to 4,000 yards, according to the size, its capability of throwing a small iron projectile a short or great distance with sufficient force to penetrate the iron of the strongest torpedo-boats, requiring not more than two men to handle it, render the same the most effective gun for quick naval action and for all branches of Army service.

Third. The invention is entirely new, and its novelty consists in rapid loading, firing, and discharging the empty cases, and its application to purposes hereinbefore mentioned.

Fourth. The application for a patent is now pending.

UNITED STATES TORPEDO STATION,
Newport, R. I., January 10, 1878.

COMMODORE: I have to inclose copy of a letter addressed by me to Commander Howell, marked A; copy of letter from him in reply, marked B; also order to a board of officers to witness the experiments under the direction of Commander Howell, and the report of the board; also an account of a few experiments had since.

It would seem that the diving apparatus of the torpedo is at fault, or that the exterior surface of the exit-pipe is not parallel to the longitudinal axis of the torpedo, or that the torpedo contains in itself the cause of the trouble found in its not preserving a constant depth.

To ascertain definitely the cause or causes of this defect by a series of experiments and alterations on the present torpedo would be very costly, and I do not think that if that difficulty should be overcome that this torpedo would then be a success; certainly Commander Howell can, at great less cost, by an entirely new design, much better illustrate his principles, and, possibly, give an effective torpedo.

As there is no draughtsman at the station I would respectfully ask permission to photograph the torpedo as one of the most ingenious inventions of the day, and as possessing a principle which some day may come in use.

Respectfully, your obedient servant,

K. R. BREESE,

Captain U. S. N., Inspector of Ordnance, in charge of Station.

Commodore W. N. JEFFERS, U. S. N.,

Chief of Bureau of Ordnance, Washington, D. C.

A.

UNITED STATES TORPEDO STATION,
Newport, R. I., December 26, 1877.

SIR: Commander Selfridge, Lieutenant Maynard, and Lieutenant Couden are appointed a board to witness and report on the trials of your torpedo, under your direct arrangement.

I desire that you will submit to me a general description of your torpedo and its merits as claimed by you, and that you will state what, if any, mechanical defects there may exist in its present condition.

Respectfully,

K. R. BREESE,

Captain, U. S. N., Inspector of Ordnance, in charge of Station.

Commander J. A. HOWELL, U. S. N.

B.

UNITED STATES TORPEDO STATION,
Newport, R. I., December 26, 1877.

SIR: In reply to your order of this date to submit a general description of my torpedo and its merits as claimed by me, and to state any mechanical defects that may exist in its present condition, I respectfully state:

My torpedo consists in a shell of copper having the shape of a cylinder, terminated by cones. Its displacement is about 270 pounds. Light brass rings within, to which cylinder and cones are screwed, serve to bind the whole together. The rings also support a rectangular framework of steel, in which two fly-wheels are carried so as to revolve freely on their axles, which are parallel and pass through the longitudinal axis of shell and perpendicular to it. Small pulleys on the axles are connected by belts, and one pulley is connected with a larger pulley of a centrifugal pump, the exit-pipe of which passes aft with its axis also in the longitudinal axis of shell. A driving-rudder of the usual construction is attached, as is also a vertical rudder.

My torpedo is constructed with the intention of making use of the following principle: "A body revolving about an axis, when solicited to move about another axis, will revolve about an intermediate axis."

I make use of this principle by giving the fly-wheels great angular velocity, their planes being vertical, or axles horizontal, and then dropping the torpedo in the water.

When launched from the broadside in this way from a ship at sea, rolling and pitching and moving at full speed, it may be considered certain that the torpedo would be subject to forces that, without a revolving fly-wheel, would make its course through the water perfectly uncertain, and most likely dangerous to the ship from which it is launched.

I claim that the fly-wheels will change the axis of rotation of the torpedo (whatever may be the axis about which the deviating force may tend to cause it to revolve); also that the resulting angular deflection will be very much reduced, and that the torpedo can afterward be brought back to its original condition by an automatic corrector. I claim that by the revolving fly-wheels a deviating force (which would be sufficient to turn the torpedo so much that it would be dangerous and perfectly unreliable without the revolving wheels) will produce no appreciable angular motion in the torpedo.

I claim a force to deviate or give motion to the torpedo about its vertical axis, supposing its axle and the axles of the fly-wheels horizontal, will cause a much less angular motion about the longitudinal axis.

As the torpedo rolls, a pendulum puts a friction wheel in action; this by a tiller-rope acts on the vertical rudder, which, being put so as to exert an opposite deviating force, rolls the torpedo back. I therefore claim for my method that I allow for a deviating force and only very much diminish the angular motion of the torpedo, resulting from it. That by obtaining a resulting roll for the action of a deflecting force, I am, by means of the pendulum, enabled to apply an equal opposite deflecting force to the torpedo. Or, in other words, I am by the above methods enabled to allow and counteract any deviating force; and it is a deviating force, by which I mean a force tending to alter the compass-heading of the torpedo, that we must expect to meet with in launching torpedoes from ships at sea. A rolling force will produce deviation, but, neglecting the rolling forces from the propeller for a moment, I claim that such roll-

ing force, since it appears as deviating angular motion, may be neglected.

I claim no particular merit in the diving apparatus or the propeller. The latter has only been devised as offering the best probability of giving no rolling reactions.

Though I drive the propeller from the fly-wheels, I claim my invention to have for its object more particularly the *guiding* of torpedoes, although I *believe* that the fly-wheel will be the best and cheapest method of driving these broadside torpedoes, which being used at vessels rapidly crossing the line of torpedo direction, need not range over one hundred yards. I find the torpedo constructed so that it is in entire accordance with my plans; any defect it may have is due to the plan. The pendulum and steering apparatus may not be sufficiently delicate, but I think the idea can be carried out. The pendulum now does the work. A more delicate way would be to have the pendulum simply establish a circuit; the magnets then press up the friction-wheel.

Very respectfully,

J. A. HOWELL,
Commander, United States Navy.

Capt. K. R. BREESE, U. S. N.,
Inspector of Ordnance, Commanding Station.

UNITED STATES TORPEDO STATION,
Newport, R. I., December 26, 1877.

SIR: You are hereby appointed a board to witness the trials of Commander Howell's torpedo as conducted by him and to report them in detail, with such remarks as may seem necessary to you to show perfectly the designs of the inventor. I call your attention to the inclosed general description of the torpedo embracing its merits.

K. R. BREESE,
Captain, U. S. N., Inspector of Ordnance, in charge of Station.
Commander F. O. SELFRIDGE, U. S. N.; Lieut. W. MAYNARD, U. S. N.; Lieut. A. R. COUDEN, U. S. N.

UNITED STATES TORPEDO STATION,
Newport, R. I., January 5, 1878.

SIR: In obedience to your orders, we have witnessed the various trials of the Howell torpedo, conducted by Commander Howell in person, and report in detail, as follows:

DECEMBER 27.

During forenoon, engaged in ballasting the torpedo and in testing the detaching apparatus by dropping the torpedo when running at moderate speed. The torpedo was ballasted so that it floated with its longitudinal axis horizontal and with its upper surface about $1\frac{1}{2}$ inches out of the water. The detaching apparatus worked satisfactorily.

It was observed that the torpedo required more power, as applied by the hand to the bow, to deflect it horizontally when the fly-wheels were in motion than when they were at rest, the torpedo being in water. The above trials were made in a small tank.

In afternoon made trials from the *Nina*. Calm; no sea; no current. The frame from which the torpedo is dropped was secured to the port

side of Nina abreast the foremast, the outer end hung from the fore-gaff, and the inner corners were movable on two vertical iron bars secured to the guard-rail of Nina.

1st trial.—34 pounds steam. Steam on torpedo, 1^m. Torpedo dropped from about 3½ feet above water. When dropped, the torpedo disappeared for about 10 seconds; then rose to the surface about 10 feet from frame-work, remained at surface, kept a straight course for about 40 feet, after which she gradually turned to port, and at 100 feet had turned through 180°, when the engines stopped. Speed of engine estimated at 2,000 revolutions per minute when torpedo was dropped. Time occupied in running 100 feet, 1^m 6^s.

2d trial.—36 pounds steam. Steam on torpedo, 1^m. Torpedo dropped about 3½ feet, disappeared below the surface, and after running 25 feet rose to surface bow first, ran 25 feet at surface, then dived to bottom and stuck in the mud. The entire 50 feet was in a straight course. Speed considerably greater than before; probably not more than twice as great. On raising torpedo found about one quart of water in her. Clutch-valve leaks.

3d trial.—40 pounds steam. Steam on torpedo, 1^m 23^s. Lowered frame, torpedo dropped 1½ feet, rose to surface bow first at about 15 feet from frame, turned to level, then bow rose into the air, then she turned and dived vertically to the bottom. Total distance run, over 50 feet; course, straight; time, 17^s. Leaked, as before, to about the same quantity.

4th trial.—Steam 40 pounds. Steam on torpedo, 1^m 20^s. Torpedo dropped 1½ feet and did not rise again to the surface. Total distance, about 15 feet. The engine of torpedo worked 2^m 6^s. When raised, the torpedo contained about the same quantity of water.

DECEMBER 28.

Occupied in repairs to leaky case. Added about 3½ pounds of ballast; shifted ballast aft and downward. Reduced surface of diving-rudder one-half. Stiffened springs of clutch-valve.

DECEMBER 29.

Resumed trials from Nina. Calm; no sea; no current; 40 pounds steam.

1st trial.—Steam on torpedo 1^m 35^s. Torpedo dropped 1½ feet, rose to surface about 30 feet from frame, kept a course at surface for 20 feet, then dived vertically to bottom. The 50 feet was in a straight course.

2d trial.—Steam on 1^m 35^s. Torpedo rose to surface at about 60 feet from frame, came to surface at a very small angle, ran 15 feet at surface, and dived, as before, 75 feet; distance occupied 24^s.

3d trial.—Diving-rudder lashed in a horizontal position; torpedo stuck in the mud a short distance from frame.

4th trial.—Diving-rudder lashed so as to bring the torpedo to the surface. Torpedo rose to surface just clear of frame, then ran with her bow about 4 inches out of water, maintaining a straight course for about 70 feet, then turned gradually to starboard; whole distance run, about 120 feet. Speed same as in previous trials. Speed of engine was taken just before dropping torpedo, 2,400 revolutions per minute.

DECEMBER 31.

Torpedo in tank. Fly-wheels of torpedo not in motion; two weights, 5 pounds each, hung so as to pull horizontally as a couple at the bow and stern; deflected torpedo 30° in 1½ and 1¼ seconds.

Under the same circumstances, except that the fly-wheels of torpedo

were making 1,476 revolutions per minute, the same deflection was produced in 2 seconds.

When torpedo fly-wheels were not in motion, a slight pressure of the hand on bow or stern was sufficient to give it a rapid motion in azimuth, the torpedo turning readily about a vertical axis; when torpedo fly-wheels were in motion the same pressure applied to the bow produced very slight change in azimuth, but the torpedo moved bodily to the right or left, maintaining nearly the same compass course; at the same time the torpedo rolled slightly in the opposite direction. If one end of the torpedo was held fast, a considerable pressure was necessary at the other end to deflect the torpedo, and any deflection was accompanied by a rolling motion in the opposite direction.

JANUARY 2.

The following changes have been made: Two vertical wooden pieces have been secured to the bow; two similar pieces horizontally on the stern. These pieces of pine, $1\frac{1}{2}$ inches thick, reach the entire length of the bow and stern cones, and are prolongations of the cylindrical portion of the case. A strip of lead, $1\frac{1}{2}$ inches wide, extending the whole length of the cylinder, has been secured to the bottom of the cylinder outside; weight, 7 pounds. A bellows has been placed in the bow cone of the same area as the old bellows; the use of the old bellows is discontinued; the new bellows is connected to diving-rudder by a wire on outside of case. The torpedo floats practically the same as heretofore.

Resumed trials from Nina. Wind moderate, 4 points on port bow of torpedo; smooth sea; no current; 40 pounds steam.

1st trial.—Steam on torpedo, 1^m 15^s. Torpedo rose to surface at about 30 feet from frame in a straight course, remaining at surface, she expended her force in a spiral with decreasing radius, turning to port. The torpedo turned or rolled about its longer axis until the wooden pieces were forward nearly horizontal; that is, nearly 90°. This turning on the torpedo's axis brought the steering-rudder into action, and, when the torpedo was recovered, the steering-rudder was found hard a-port. Under the circumstances, the torpedo having turned on to its side, the steering-rudder had little tendency to correct her course, but became a diving-rudder, while the diving-rudder became a steering-rudder, and turned the torpedo to port.

After this trial, removed wooden pieces, outside ballast, and $4\frac{1}{2}$ pounds of lead from inside. Torpedo now floated practically as heretofore.

2d trial.—This trial made at less than usual speed of engines. Torpedo rose to surface, and dived three times in a straight course of 75 feet, rose and dove at a sharp angle with the vertical, diving to bottom at last. Speed about the same as heretofore.

3d trial.—Whole distance run about 25 feet, where torpedo dived to the bottom.

4th trial.—Secured diving-rudder so that it did not have so much play in a direction to make her rise. She ran a straight course for about 60 feet at about 3 feet below surface, then rose to surface nearly level, returned to 3 feet below surface, ran about 10 feet, and dived to bottom. Speed about the same as heretofore.

5th trial.—Secured diving-rudder so that it had little play in either direction. Torpedo rose to the surface at 10 feet and at 20 feet dived to the bottom.

6th trial.—Cut off forward portion of balanced diving-rudder. Torpedo dived to the bottom at 25 feet.

7th trial.—Trial at slow speed of engines. Torpedo dived to the bottom at 15 feet.

In conclusion, referring to the letter of Commander Howell, accompanying this report, describing his torpedo, he lays down its principle as follows: "My torpedo is constructed with the intention of making use of the following principles: 'A body revolving about an axis when solicited to move about another axis will revolve around an intermediate axis.'" We find in the tank-trials, with the fly-wheels in revolution, that when a force was applied to one end of the torpedo, the result was to cause the torpedo to move sideways bodily, preserving a direction almost parallel to its direction before the force was applied, and also to cause it to revolve slightly about its longitudinal axis, which is in accordance with the above principles. This rolling motion brings the steering-rudder into action.

The trials from the *Nina* were under circumstances (smooth sea, calms, and light winds, and no currents) very favorable to its working, and not calculated to bring out the principle of the torpedo as claimed by Commander Howell; the diving apparatus was so defective as to prevent the torpedo from exhibiting to the board what the trials in the tank would have led them to expect if the torpedo could have been kept for any distance in a horizontal position.

Very respectfully, your obedient servants,

THOS. O. SELFRIDGE, JR.,

Commander, U. S. N.

W. MAYNARD,

Lieutenant, and Assistant Inspector of Ordnance.

A. R. COUDEN,

Lieutenant, and Assistant Inspector of Ordnance.

Experiments with Howell's torpedo from United States ship Nina, after trials in presence of the board.

JANUARY 8, 1877.

Since last trial soldered a small copper lip to lower half of outer end of exit-pipe, lip inclined upward so as to throw the discharge-stream up. Removed 8 pounds 10 ounces of lead from inside of bow-cone. Diving-rudder set for diving at an angle of about 8° .

1st trial.—Steam 40 pounds. Steam on engine, 1^{m} . Frame just clear of water. The torpedo came to the surface about 3 feet clear of frame, and ran at the surface, end of bow-cone just out of water, in nearly a straight course for about 75 feet. Then it gradually rolled to port and turned to starboard, the diving-rudder steering it around. Total distance run about 120 feet. Diving-rudder seemed to have no tendency to make torpedo dive.

2d trial.—Set diving-rudder for diving at an angle of about 15° . Steam, 40 pounds. Steam on engine, 1^{m} . The torpedo ran about the same distance and in the same manner as in the 1st trial, except that after coming to the surface it kept nearly on an even keel longitudinally. Ran $1\frac{1}{2}^{\text{m}}$.

3d trial.—Returned 6 pounds lead to bow-cone. Steam, 34 pounds. Steam on engine, $1^{\text{m}} 10^{\text{s}}$. Torpedo came to the surface about 5 feet from frame, ran at surface (torpedo horizontal) in nearly a straight course for about 60 feet, then rolled slowly to port and turned to starboard, striking breakwater. Time of running, 1^{m} .

4th trial.—Lashed a strip of lead weighing 5 pounds 8 ounces along the bottom of the cylindrical part of torpedo, trimming torpedo considerably

by the stern, and rendering it just buoyant enough to float. Steam, 40 pounds. Steam on engine, 1^m 22^s. Torpedo rose to surface 6 feet from frame, and ran in nearly a straight course for about 40 feet, then rolled to port as before, turned the starboard, and ran into the breakwater.

5th trial.—Took off the lip on under side of outer end of exit-pipe. Steam, 40 pounds. Steam on engine, 1^m 20^s. Torpedo came to the surface 8 feet from frame, nearly vertical. Ran *very slowly* in this position for about 20 feet, rolled slowly to port, and turned to starboard.

6th trial.—Steam, 40 pounds. Steam on engine, 1^m 35^s. Torpedo rose 10 feet from frame, nearly vertical, turned slowly about horizontal axis, and dove to the bottom at 40 feet from frame, sticking fast in the mud.

A.

TORPEDO STATION, March 12, 1878.

SIR: In accordance with your direction, I respectfully submit the following report in relation to some experiments with certain fuses in dynamite. These were part of those which I have been making the past few months on frozen dynamite.

The fuses used were of two kinds. One was a fuse made by Mr. J. H. Striedinger, of New York; the other was the detonating fuse made at this station.

The construction of Mr. Striedinger's fuse is as follows:

The bared ends of two pieces of insulated wire are fixed in a small copper cylinder by sulphur and connected across by a bridge of fine wire; another short copper cylinder fits into the first, inclosing the bridge, and is filled with a priming powder retained in place by a rubber-cloth disk; a copper shell contains the charge (about 20 grains of fulminate), and into this shell fits the other part; the whole is dipped in some black varnish.

The resistance of these fuses averages about 1.75 ohms each (cold).

Mr. Striedinger claimed for these fuses that they would infallibly explode nitro-glycerine and its preparations when frozen. Our experience with frozen dynamite had been that there was a considerable degree of uncertainty about its explosion with a single fulminate fuse.

Thus, in a series of experiments made at this station in winter of 1876-'77, it was found that the simple fulminate fuse (detonator) nearly always failed to explode frozen dynamite, in large and small charges. (Secretary of the Navy's Report for 1877.) In many previous experiments, explosion by the same fuse was usually obtained, but also with many instances of failure.

The same station fuse has been used in the recent experiments as in those of a year ago and at earlier times, viz: a platinum wire fuse, primed with gun-cotton and containing 20 grains of pure fulminating mercury.

Of 18 of Mr. Striedinger's fuses, 17 exploded their charges of frozen dynamite and one failed to do so, although the explosion of the fuse tore to pieces the can, scattering the dynamite, and was sharp enough to be noticed although in a considerable depth of water.

Of 30 station fuses fired in similar charges, 28 exploded their dynamite and 2 did not, although exploding themselves with force enough to burst the cans in which they were placed.

The general result thus indicated is very different from that obtained a year ago. Then explosion was obtained but rarely, while at this time

there were but 2 failures in using 30 of the station fuses, and but 3 in 48 trials, including the 18 Striedinger fuses.

Still, it remains that the explosion of frozen dynamite does not *always* occur with a simple fulminate fuse. At some times and under certain circumstances it is nearly always accomplished, and at others the reverse is true. The cause for the non-sensitiveness of a frozen dynamite is to be found, I think, principally in the nitro-glycerine of which it is made, and also in its mechanical condition. I have found that nitro-glycerines (that is, different lots) do vary in sensitiveness, and necessarily the dynamites made from them will correspondingly vary. But I shall recur to this point in my fuller report on experiments with dynamite, and therefore will not discuss it here.

Comparing Striedinger's fuse with ours, the only essential difference between them is in the priming, his having a priming-powder, and the station gun-cotton. It is not easy to see why this should make any difference in their performance. The fulminate in both is pure and nearly the same in amount. Mr. Striedinger's fuse is a good one, but possesses no superiority over others of the same type.

As already stated, 1 in 18 of the Striedinger fuses failed to explode frozen dynamite. Perhaps the proportion would have been different if more experiments had been made, but there were but 25 of the fuses originally. I regret that there were not more of them and opportunity for more numerous trials, but if the experience of a year ago had been repeated, the number employed would have been sufficient.

In continuing these experiments in the future I should wish to try Mr. Striedinger's fuses again, and would request that 200 or 300 be purchased.

However, one failure to fire is sufficient to indicate an uncertainty, unless it appears that the fuse is defective, which certainly could not be said of any of Mr. Striedinger's fuses.

As already stated, 2 in 30 (or 1 in 15) of the station-fuses failed to fire the frozen dynamite. This result is quite different from that of a year ago, but the two failures show that the uncertainty does exist.

It is plain that the performance of the Striedinger fuse in frozen dynamite is practically the same as that of the station fuse, as might be expected. At this time, each nearly always exploded it. At another time, and under other circumstances, the reverse might occur, as in the trials of a year ago.

I must not omit to note one point of difference between this and the previous time.

During the winter of 1876-'77 we had much cold weather. Nitro-glycerine and dynamite in magazine froze early, and remained frozen nearly all winter; while during the months just past we have had but very little really cold weather; nitro-glycerine and dynamite hardly froze at all in the magazines, and but comparatively lightly; and even if freely exposed, there have been this last winter but few days when dynamite would freeze hard and quickly, so that to make sure of freezing I have placed the cans into which the dynamite was charged in ice.

Finally, I would remark that a charge of frozen dynamite fixed by a Striedinger fuse gave very nearly the same figure in the force-measuring apparatus as a similar charge fired by a station fuse.

Very respectfully,

WALTER N. HILL.

Capt. K. R. BREESE, U. S. N.

B.

TORPEDO STATION, *March 12, 1878.*

SIR: I respectfully present the following account of some experiments with frozen dynamite:

A year ago in a series of experiments it was found that explosion of frozen dynamite was rarely obtained when a simple fulminate fuse was used. In previous trials it had been found that explosion usually occurred, but with not infrequent instances of failure, and that firing seemed to be largely dependent on the mechanical condition of the explosive, that is, whether the frozen dynamite was dense and solid or loose and pulverulent; in the former case explosion not being usually obtained, and in the latter almost invariably.

Returning to this subject this last winter, I have made a number of experiments. Their result has been quite different from that derived from the work of a year ago. Explosion has been produced nearly always, but there were still instances when it was not brought about.

The fuses used were fulminate or detonating fuses. Most of them were made at the station, but also some made by J. H. Striedinger, civil engineer, of New York, were employed for purposes of comparison. I have in a report of this date indicated the result of this comparison. Both kinds were low-tension electric fuses charged with fulminating mercury. The dynamite used contained 75 per cent. of nitro-glycerine, and was nearly all prepared in the summer and fall of 1877 from nitro-glycerine made during the same period. The thawed dynamite was closely packed in tin cans, in the amounts desired (1 to 7 pounds), and fuses inserted. After freezing had taken place, the cans were fired in 8-12 feet of water, or in the open air, in connection with an apparatus for measuring the force exerted.

In 48 trials, explosion was produced 45 times and failed to occur 3 times (18 trials with the Striedinger fuses, and 1 failure; 30 trials with station fuses, and 2 failures). In the cases of failure to explode, there was no seeming defect in the fuses, for they were fired, tearing open the cans, scattering the contents.

At this time, then, simple fulminate fuses have been much more effective in frozen dynamite than the same fuses were a year since. This may be due to a difference in the explosive used on the two occasions. I have shown by many experiments that liquid nitro-glycerine does vary in sensitiveness, as also the dynamites prepared from different makes of it. These differences are not great with an article made as carefully as the nitro-glycerine prepared at this station, but they become of importance when dealing with the frozen substance, since then explosion is much less readily obtained. Again, two different lots of absorbent were employed in making up the dynamites. Variations in the absorbent, the proportion of nitro-glycerine being the same, make the dynamite denser or lighter, wetter or drier, coarser or finer, and such variations in mechanical condition exercise a powerful influence on the explosibility of the frozen material, as a loose, pulverulent frozen dynamite will almost always, if not invariably, be exploded, while a dense, solidly frozen mass will stand a good chance of not being fired. Thus the dynamite used in the last experiments was much drier in its normal state, and when frozen was looser and lighter than that of a year ago. As might have been expected, explosion was much more easily produced.

But still the fact remains that explosion is not always accomplished under such conditions. We must therefore conclude that the firing of nitro-glycerine preparations in the frozen state is much more difficult

than in the usual or thawed condition, and that it is not certain that it will be brought about by the fulminate fuse, which surely and reliably accomplishes it when they are not frozen.

The consideration of the means by which the explosion of frozen dynamite may be insured I leave until another time. I hope to have the opportunity to recur to this matter and work it out more fully.

During the last winter we have had very little really cold weather. Dynamite has frozen but lightly, comparatively speaking, in the magazines, and some samples of nitro-glycerine in the same place, in a wooden case, have remained liquid all winter.

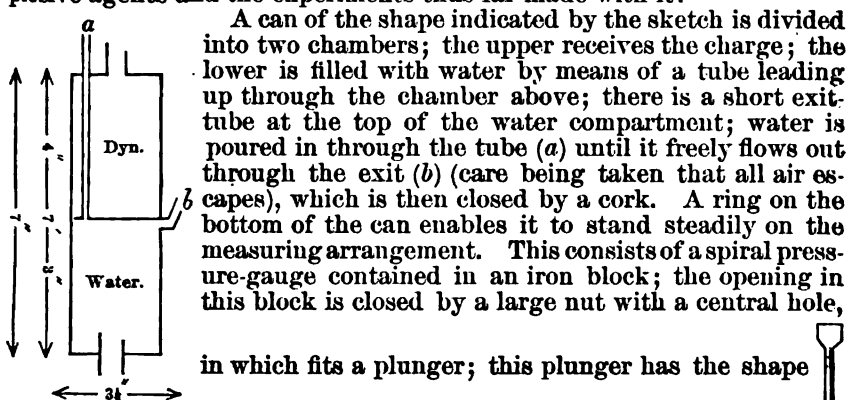
Very respectfully,

WALTER N. HILL.

Capt. K. R. BREESE, U. S. N.

TORPEDO STATION, March 15, 1878.

SIR: In accordance with your direction, I submit the following description of an apparatus for comparative measurements of the force of explosive agents and the experiments thus far made with it:



in which fits a plunger; this plunger has the shape



Its lower end rests upon the piston of the gauge, and upon its upper (1-inch diameter) is placed the can.

In this way a layer of water of known thickness is interposed between the charge and the gauge. The iron block is placed on the sand in air, with the plunger up, and upon this the can.

The intention of this arrangement is to measure only the initial blow; that is, to get an idea of the effect first derived from a submarine explosion, as distinguished from the effect due to the movement of the water by the escaping gases. [“Onde comprimée violente,” Audic—Effets des explosions sous-marines.] This first and violent blow is peculiarly marked in the explosions of the detonating bodies (dynamite, gun-cotton, &c.), and its effect must be principally relied upon for destructive work at some distance from the center of explosion. We may therefore use this method to relatively determine the force thus transmitted and the loss it experiences during transmission. Also, it would seem probable that we shall be able to arrive at a good relative comparison of the detonating explosives; a result greatly to be desired.

Some preliminary experiments in January, 1877, with various methods, indicated the one described as the best, but there has been no opportunity to go on with the work with it until recently.

The experiments now made have been mainly to try the method to see if concordant results were obtainable by it, and have been nearly all made with frozen dynamite, in connection with other work with that material. The following are among the results obtained :

Explosive.	Time made.	Amount.	Containing nitro-glycerine.	Condition.	Pounds indicated.	Remarks.
Dynamite, 75 per cent.	{ Same }	Oz. 20	Oz. 15	Frozen.....	40, 800	Plunger upset.
Do		20	15	Thawed.....	40, 400	Do.
Do	Oct. 24, 1877	20	15	Frozen.....	45, 600	Do.
Do	do	20	15	do	42, 800	Do.
Do	do	20	15	do	40, 000	Do.
Do	do	20	15	do	42, 000	Do.
Do	Sept. 17, 1877	20	15	do	34, 000	Do.
Do	Feb. 26, 1878	20	15	do	35, 600	Do.

The figures in the 6th column are obtained by multiplying the readings of the disks by 4, the No. 2 gauge having been used. In every case the top of the plunger was more or less upset. This would, of course, cause some variation in the cuts, the plungers being different and varying in resistance. Allowance may be made for this, but I think there will be no difficulty in remedying it in the future, as that allowance will not be required. But allowing for such variation, the agreement is satisfactory.

In Nos. 1 and 2, the difference is very small, and it is noteworthy that in both the same dynamite was used, one charge being frozen and the other thawed. It may be inferred, therefore, that as perfect an explosion (detonation) was obtained in one case as in the other. Nos. 3 to 6 are from one lot of dynamite in same amounts as before, and the figures are reasonably close, under the circumstances, and accord with the preceding ones. Nos. 7 and 8 are of different lots and give results considerably less than the others, although nearly like one another. Very probably in these preparations the explosion was less perfect (*detonation* not obtained). I have often been convinced that this was the case with frozen dynamite at certain times, but have not been able to show it before. Evidently, if the same dynamite, thawed, gives steadily higher results, it is proved. Other comparisons, such as relation of amount of charge to space occupied by it, &c., are plainly possible.

Some other trials have been made, but not given here, as their results are not comparable without further experiment. But these results show that we have an excellent mode of comparing together explosive agents, and particularly in relation to their use in submarine work.

As the experiments are continued I hope to be able to present some conclusions in regard to some of the points raised.

Very respectfully,

WALTER N. HILL.

Capt. K. R. BREESE, U. S. N.

UNITED STATES TORPEDO STATION,
Newport, R. I., March 15, 1878.

COMMODORE: Professor Hill informed me of a "patent safety mine" that he had just seen described in a January London Times, and said

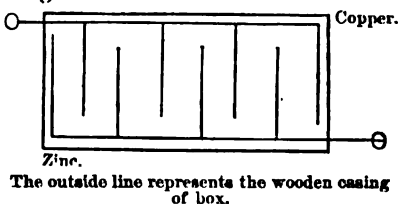
that he would like to try it. He was authorized to do so, and the following report shows the result:

Capt. K. R. BREESE:

SIR: The experiment described below, made with a circuit-closing battery for contact torpedoes, has shown that such an arrangement is practicable, and will evidently be useful in certain cases.

A wooden box (paraffined) 4 by 5½ by 3¼ inches deep (inside) contained two plates, zinc and copper, set on edge and presenting a large surface thus—

Directly over the plates was placed a glass flask or bottle, containing a solution of chromic and nitric acids (battery fluid), and this was covered and inclosed by a leaden cap which was fastened to the box. A fuse and about one hundred feet of leading wire were connected to the terminals of the plates. On striking smartly the leaden cover, the flask was broken and the fuse instantly fired. The battery fluid coming in contact with the plates set up a powerful current and also closed the circuit on the fuse.



Thus is obtained a compact, simple, and effective exploding arrangement for automatic contact torpedoes, and one which avoids all the dangers of the ordinary mechanical methods; for the connection between the fuse in the charge and the firing apparatus may be made by a wire and may be kept broken until the torpedo is planted and then completed from a suitable distance.

A wire may also be led from shore to the same fuse, so that in special cases the power of firing at will may be added to the contact method.

This plan is perhaps worthy of further experiment to devise the most suitable arrangement. Smaller battery plates would be sufficient, so the affair may be of small size. It might also be desirable to see whether sea water could not be made to answer the purpose of a battery liquid. The plates would have to be much larger in that case.

A contact torpedo with a firing arrangement similar to this has been recently used by the Russians. A correspondent of the London Times (January 1878) mentions such a "patent safety mine," and this statement led me to make the experiment detailed above.

Very respectfully,

WALTER N. HILL.

Respectfully, your obedient servant,

K. R. BREESE,

Captain, U. S. N., Inspector Ordnance, in Charge of Station.

Commodore W. N. JEFFERS, U. S. N.,

Chief of Bureau of Ordnance, Washington, D. C.

UNITED STATES TORPEDO STATION,
Newport, R. I., March 30, 1878.

COMMODORE: I have to forward herewith a plan of Lieut. J. S. Newell, for a testing and firing plate, and would respectfully recommend its adoption in place of the switch-boards now furnished to ships.

So long as the D. E. machines are furnished to ships, it is well to have the firing-key belonging to them, and I would not therefore recommend its discontinuance for the present, although it would scarcely ever be used.

Respectfully, your obedient servant,

K. R. BREESE,

Captain, U. S. N., Inspector of Ordnance, in Charge of Station.

Commodore W. N. JEFFERS, U. S. N.,

Navy Department, Washington, D. C.

UNITED STATES TORPEDO STATION,
Newport, R. I., April 4, 1878.

COMMODORE: The following is the estimate for making a testing and firing plate, upon the plans of Lieutenant Newell:

Plate with hemispherical brass cover.....	\$40 00
Two keys	10 00
Electric bell (to be purchased)	5 00
Pedestal, brass	50 00
Patterns for castings	10 00

115 00

The plate, the finishing and putting together can be done here. The castings and brass cover would be made in Providence. If the pedestal is of wood of course the expense would be much less, and again if a number were to be made the cost would be much reduced.

Respectfully, your obedient servant,

K. R. BREFSE,

Captain, U. S. N., Inspector Ordnance, in Charge of Station.

Commodore W. N. JEFFERS, U. S. N.,

Chief of Bureau of Ordnance, Washington, D. C.

UNITED STATES TORPEDO STATION,
Newport, R. I., March 28, 1878.

SIR: In obedience to your order, I beg leave to submit the accompanying plan in detail of a testing and firing plate, a sketch of which was submitted to you on the 14th instant.

The service outfit of to-day includes a firing key and two switch-boards.

The latter are generally placed under the bridge of a ship, and the permanent wires led from them. By their construction and position an assistant to the operator is required, thus furnishing a source of failure or error.

The firing key designed to be used with the D. E. machine issued, is kept stowed in the box with the machine, and when required for service is taken to some convenient place and rigged. From it wires must be led; two to the machine, two to the switch-boards, and one to make an earth connection. These are led as advantageously as possible; yet they are liable to encumber the decks and be an annoyance to the operator if not to the crew. The construction of the key requires that when in use the needle shall point in the direction of the length of the box, which necessitates that the length of the box shall be in the plane of the meridian. Unless the ship is stationary or moving in a straight course, the box must constantly be shifted to fulfill this requirement, or else the needle may fail to indicate the passage of a current. It is essential that the test signal, whatever it may be, should be distinguishable at all times. This key furnishes no evidence of the passage of a current, except when the needle is visible. Again, to accomplish an explosion the operator must use both hands.

All these are sources of error, and to fulfill all these requirements will be at times annoying.

The plan proposed combines these two instruments and eliminates the sources of error, combining all operations under the personal control of one person, the operator.

It is intended that this plate shall be permanently placed in some suitable location, mounted on a hollow pedestal, through which the permanent wires converging to this point shall pass.

The apparatus is shown in figures I, II, III, and IV.

Fig. I is a top view. A $A_1 A_2 A_{12}$ is a brass plate, 12 inches diameter and $\frac{3}{4}$ inch thick, divided into the sectors A $A_1 A_2 A_{12}$ and the ring B. These are insulated from each other by ebonite. A is intended as a locker for the pins; A_{12} carries the short circuit and testing-key T; $A_1 A_2 A_{10}$, sectors to which permanent wires are attached, as A, starboard forward torpedo; A_2 , port forward torpedo; A_3 , starboard aft, and A_{10} , port after torpedo. Connection is made between any sector and the ring B by the introduction of a pin in the appropriate hole K. C is a hollow space with a thin covering for protection, under which the test alarm is placed.

Fig. II is a section through A and A_{12} , showing testing and firing keys and their connections. D is an ebonite insulator, 12 inches diameter and 1 inch thick, insulating the upper plate from the base-ring E, which is a brass ring 12 inches diameter and $\frac{1}{2}$ inch thick; L, a locker for the pins; R, a resistance introduced in the testing circuit in the bell magnetic coils; S, the gong.

Fig. III is a section through A_3 and A_6 , showing the pins P in place for connecting these sectors with the ring B; also, shows the manner of securing the plates together and to the pedestal; also, how the permanent wires arrive at their proper sectors.

Fig. IV is a bottom view of sectors A_3 and A_4 , showing these sectors by dotted lines and the plate E by full lines, the distribution of the screws, and the passage for the permanent wires.

The whole is mounted on a hollow pedestal and the plate has a hemispherical cover, resembling a compass outwardly.

The D. E. machine now issued requires a short circuit, which is readily furnished by the testing-key, which is a circuit-continuity-preserving key. It is presumed that the machine will be operated from some permanent place. In this place are secured two binding-screws, to which the machine will be connected by short wires for service; Fig. II, these binding-screws are shown at $m m'$. From these permanent wires are led to the plate; the one from m' is connected to the bolt b , which is insulated from A_{12} by ebonite, and the wire from m to the post c also insulated from A_{12} . On b a lever, a , is pivoted, which in its normal position rests on c , held there by the spring y . The short circuit shown in full black lines in the Fig. II is then from the machine to m' , to b , by a to c , back to m , and to the machine.

Desiring to test, a pin is first put in position, connecting the proper sector with the ring B. The resistance R has one end connected to the ring B at the post t ; the other end is connected to the bolt d , which extends through all the plates—that is, A_{12} and the base-ring E—well insulated from both. On the upper end it serves as a pivot for the lever e , and the lower end as a contact point for the key F. On pressing the testing-key T contact is made between the levers a and e before the short circuit is broken between a and c . The normal position of lever e is as shown in the figure. This is maintained by the spring y' . The testing-circuit is then (shown in the figure by a full red line) from the machine to m' , to b , by a to e , to d , through the resistance to the ring B, by the pin to the sector, and through the permanent wire to the object and earth. The post m has an earth connection, by which the return path to the machine is secured. If the circuit is complete and a current

passes, it will be indicated by the striking of the bell, a notice distinguishable by day or night.

To fire, the key F is lifted to contact with *d* at *h*; the screw *j*, insulated from the base E, opens a path to ring B of comparatively no resistance, practically shunting out the resistance R. The key T being pressed, the circuit is, as shown by the black dotted lines, from machine to *m'* to *b*, by *a* to *e*, by *d* to *h*, by key F to *j* and to B, by pin to sector, permanent wire to object and to earth, returning by *m* to machine.

The keys are purposely placed as shown, T being more accessible on top, and if accidentally struck no harm ensues; F underneath is more protected and will hardly be closed, except intentionally. Both keys can be operated by the same hand.

To prevent accidental contact between any two sectors or between any sector and the ring B, the insulation is carried between these above the plate, as shown at *o*; this might happen by the careless laying of any metal on the plate.

The use of the machine complicates it, for if a battery was used the key T would be dispensed with and the mere insertion of a pin would test, and the lifting of F would fire, thus simplifying the connections.

This size is taken for convenience, as the plate could be larger or smaller and accomplish the same; again, it was divided as shown to illustrate that a large number of sectors could be arranged thus.

The connection of the permanent wire, as shown in Fig. IV, is secured by spreading out the wires of a multiple conductor, and soldering them star-fashion to the bottom and side of the sector, to the side, so that if necessity demanded the enlargement of applications the sector could easily be cut in half with the radius and pin-holes made as shown at K' and K'', Fig. I. This could be easily done with the facilities found on board ship, thus doubling the number of applications, a necessity in case of a defense of a disabled ship.

This is as applicable to guns as to torpedoes; a slight change in the arrangement would answer. In use with guns it might be necessary to distinguish which gun is ready; this might be done by inserting in the sector the distinguishing number of the gun as P 1, S 2, on a small piece of ground glass with the number etched in; when the testing circuit was completed a battery would be closed upon a strip of platinum under the glass, reddening it, illuminating the number, and ringing a gong.

It may be difficult on very dark nights to readily distinguish the proper sector or hole for the pin; to obviate this a small lamp could be attached to A, reflecting only its light upon the plate.

If a battery is used a number of these can be placed in different parts of the ship and act independently of each other, branches leading to them from the permanent wires.

It is evident that any number from one to all can be fired at the same time without distinction.

This instrument possesses the following advantages over the present methods:

First. Simplicity, one instrument doing the work now done by two.

Second. Compactness, the whole being centralized at one point.

Third. Efficiency, one operator instead of a number, available at all times and applicable to guns as well as torpedoes, and more readily worked.

It is also believed that the cost would be less.

It would be more convenient to make the connections by short pieces of wire, a multiple conductor, double silk insulated of five or seven

strands; these wires to be tallied and spliced to the permanent wires on board ship below the pedestal after the plate is in position.

Very respectfully submitted.

J. S. NEWELL,
Lieutenant and Assistant Inspector of Ordnance, U. S. N.

Approved and respectfully referred to the Chief of Bureau of Ordnance.

K. R. BREESE,
Captain, U. S. N., Inspector of Ordnance, in Charge.

I.

UNITED STATES TORPEDO STATION,
Newport, R. I., June 1, 1878.

ASSIGNMENT OF THE OFFICERS OF THE STATION TO DUTY.

Capt. K. R. Breese, U. S. N., inspector of ordnance, in charge of station.

Capt. F. M. Ramsay, U. S. N., inspector of ordnance.

Lieut. Commander C. F. Goodrich, U. S. N., senior assistant inspector of ordnance, instructor in electricity and diving, in charge of Nina and boats.

Lieut. Commander H. Elmer, U. S. N., chemistry and explosives.

Lieut. J. S. Newell, U. S. N., assistant inspector of ordnance, instructor in torpedoes.

Lieut. W. Maynard, U. S. N., assistant inspector of ordnance, instructor in fuses and electricity.

Lieut. A. R. Couden, U. S. N., assistant inspector of ordnance, instructor in electricity.

Gunner William Burditt, U. S. N., in charge of machine-shop.

Prof. M. G. Farmer, electrician.

Prof. W. N. Hill, chemistry and explosives.

II.

COURSE OF INSTRUCTION.

[Embraces the months of June, July, and August.]

The attendance of officers for instruction will be from the 9.30 a. m. to the 2.30 p. m. boat.

The day is divided into two periods:

First period from 9.45 a. m. to 11.45 a. m.

Second period from 12.15 p. m. to 2.15 p. m.

The following division of time will be observed, unless due notice is given of change:

	First period, 9.45 a. m. to 11.45 a. m.	Second period, 12.15 p. m. to 2.15 p. m.
Monday	Electricity	Electricity.
Tuesday	Torpedoes	Chemistry or explosives.
Wednesday	Electricity	Electricity.
Thursday	Chemistry or explosives	Torpedoes.
Friday	Torpedoes	Examination papers.

The whole or part of a class will be assigned to a period, due notice of which will be posted in the ferry-launch and in the officers' room at the machine-shop.

III.

The officers under instruction will be divided according to rank in two parts, and will be known as the senior half and junior half.

Any change of programme from the established order will be posted in the officers' room at the machine-shop.

Pocket note-books will be furnished the class for daily notes, and a blank-book for each branch of instruction, in which drawings and examinations will be recorded.

Questions bearing upon the lectures for the week will be posted the day of the lecture; and the replies, carefully given and neatly written in the blank-books, furnished for the purpose, must be left in the officers' room on Monday morning to be taken to the commanding officer.

The books will be examined by the instructors, errors noted, and then returned by the commanding officer, with such remarks as may be deemed necessary.

The final examination will be of a practical character before the Board of Visitors, and the books of the class are to be submitted to the Board.

Opportunity will be given to officers to practice in diving and submarine work connected with torpedoes; and, at the close of the term, such officers as show themselves proficient will receive certificates as divers.

Officers who desire to continue their studies will be (if circumstances permit) allowed to remain and be attached to the station.

The course as above prescribed has been approved by the Chief of the Bureau of Ordnance and the honorable Secretary of the Navy.

K. R. BREESE,

Captain U. S. N., Inspector of Ordnance, in charge of Station.

IV.

The officers in attendance at the course of instruction are notified that the course will commence at 9.45 a. m. on Monday, June 3, and continue, as posted daily in the ferry-launch and officers' room, until its close, about the end of August.

Books similar to those issued to the officers under instruction will be issued to the officers in attendance for their personal use and advantage; and, if they desire, the instructors will gladly correct any errors they may have committed in them.

K. R. BREESE,

Captain U. S. N., Inspector of Ordnance, in charge of Station.

DIVISION OF THE CLASS OF OFFICERS UNDER INSTRUCTION.

Senior half.—Lieut. Commanders W. S. Dana, C. H. Pendleton, G. D. B. Glidden, Edwin White, Felix McCurley, C. H. Rockwell.

Junior half.—Lieuts. Frank Courtis, E. E. Pendleton, C. O. Allibone, T. H. Stevens, A. M. Thackara; Masters Nathan Sargent and Henry McCrea; Ensign M. L. Wood.

LIST OF OFFICERS IN ATTENDANCE.

Commanders O. F. Stanton, C. C. Carpenter, E. E. Potter, G. C. Remey, H. B. Seely, and A. S. Barker.

Lieut. D. P. Mannix, U. S. Marine Corps, availed himself of the permission of the bureau to attend the course of instruction.

TORPEDOES FOR ATTACK AND DEFENSE OF VESSELS, WITH AN OPINION OF THOSE IN USE, AND A SUGGESTION FOR A NEW PLAN.

The history of torpedoes shows a large proportion of failures, and the destruction or imminent risk of the boats employed. Any fast vessel fitted with a bow-spar and not having the strength to ram an iron-clad, would be obliged to slow down on approaching such a vessel, both for her own safety and for that of her spar; giving the vessel attacked greater opportunity to cripple the boat, or to obstruct and break the torpedo-gear. It would seem that the only form of bow-torpedo of practical use, is a heavy machine-bar, worked below the water line, not dependent on exposed guys, and fitted in the rain-bow of a fast and powerful compartment vessel, capable of pushing through all obstructions, and would be simply auxiliary to the ram.

Vessels fitted with side-spars are expected to manuever so accurately as to pass alongside or astern of the enemy without slackening speed, and at just such a distance as to place the torpedo against her side or under her counter, where it is exploded by electricity at the instant of touching, and before it is broken off and alongside your own vessel—delicate accuracy in action—or by closing circuit by strain on forward guy, or to let go the torpedo end of spar from alongside and make a flying shot when passing.

This is very good in theory, but the experience of many experiments by vessels of all sizes attacking undefended, stationary, and brainless targets, with deliberation and at slow speed, have proved how difficult it is to judge of the distance, and what little chance there would have been in actual warfare of placing the torpedo against the enemy's side and firing at the proper time. Any accident to the cumbersome boom, guys, or topping-lift would be fatal; and even with a machine side-bar, firing by contact, the difficulty of accurate steering or the fouling of any obstruction would prevent a successful accomplishment. Although superior to the wooden bow-spar, and possibly of some use for defense, the side-spar torpedo would be a total failure against a properly defended vessel at anchor, and of little practical use in attacking under way.

The Lay, the Ericsson, and other automatic torpedoes which may be seen on the surface as well by the attacked as the attacking party, and are so easily avoided, intercepted, or obstructed, are of no practical use whatever.

Fine shooting has been made with the Whitehead from a stationary platform at a fixed target, but give both platform and target a speed of 12 knots in varying directions, and a far different result would appear. Fired with precision at close quarters, a Whitehead might strike its object, if unobstructed. No successful use seems to have been made of it in the last war, although a few were found drifting about, and the only *reported* instance of its use was in the Huascar-Shah engagement, where its direction was observed by bubbles on the surface, and was avoided by a change of course. If great speed can be attained by a fish torpedo (as said to be the case in Ericsson's last), and if it can be accurately aimed and projected in the heat of action—allowing for the speed of the two vessels—and if no obstruction can be devised for the attacked vessel to use, it is a good thing.

Experiments have proved that the Harvey or other similar towing torpedo, would be almost impossible to control and guide in action, on account of its behavior when the course is changed, and the ease with which the towing-line is grappled and cut, unless a most accurate shot is made at a stupid adversary. And it is not likely that a commanding officer will wish to handicap his mental faculties with one of these affairs.

Fig. 1.

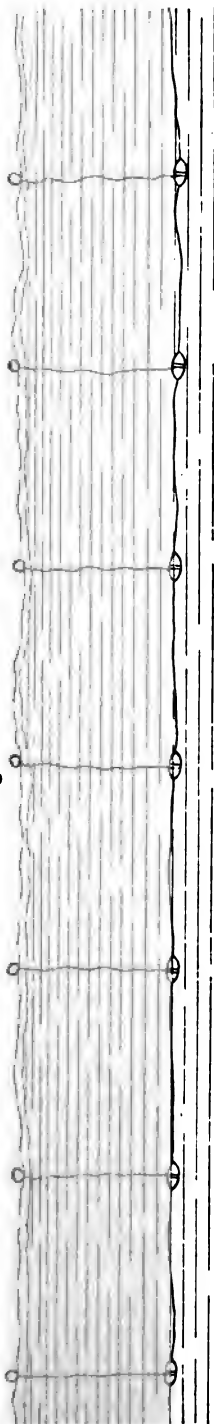
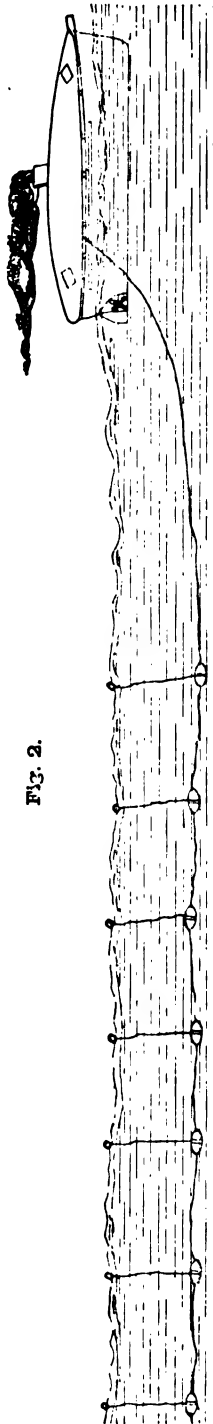


Fig. 2.



on each quarter, for defense, liable to recoil upon him when he changes his course, and so easily avoided or cut away by the enemy.

Firing grappnels over vessels from passing launches, which would drag torpedoes alongside of them, has been proposed, and is said to have been the means by which a Turkish vessel was destroyed in the Danube; but against a properly protected vessel there would be many chances of failure to one of success.

The history of submarine boats for the attack of vessels is thus far but a melancholy recital of costly failures and loss of life.

Drifting torpedoes have been tried in great numbers, and for many years; sometimes two were connected by a spar, but these probably drifted together or assumed a position parallel to the current. These torpedoes have all been fitted with automatic fuses, and of the hundreds set adrift, but few have run foul of vessels, and there are only one or two instances of explosions or damage done. These last mentioned more properly belong to the class of torpedoes for defense of harbors.

Of this list of torpedoes, the machine bow-bar, auxiliary to a ram, and the Whitehead automatic, at close quarters, seem to be the only ones of practical value for attacking vessels of war that will hereafter be expecting and prepared for such annoyance.

The simplest form of a torpedo for attack or defense of vessels, being the most easily handled, and requiring the least amount of calculation and skill for effective work, would certainly be the best for actual warfare.

The electric fuse, also, which

never fails in skilled hands, and renders the torpedoes harmless until the moment you desire them to do execution, seems to be the only one to use in attack or defense under way, but the wires should be difficult to grapple and cut.

The plan I would offer for experiment (Fig. 1), which may appear to combine some of these elements, was suggested by drifting torpedoes, and by a single-buoyed torpedo for attack (designed by Admiral Porter), which had a strong firing-wire leading from the buoy to the vessel employing it.

On a strong light line, recently designed, which contains within it the firing-wires, are lashed at intervals of, say, 25 feet, six, eight, or more cases of sheet iron or steel containing each about 30 pounds dynamite, or 50 pounds gun-cotton, or equivalent explosive, the detonating ones being preferable. The cases to be made of a form to tow easily, should that become necessary, and when filled to have a little greater specific gravity than water, so each may be supported by a small rounded buoy easily dragged under surface obstructions. No line connects the buoys to each other, but they support the torpedo-line at 12, 15, or even 20 feet below the surface, according to the supposed obstructions and other circumstances. The firing-wires connect through a coil of spare line to the D. E. firing machine or battery in the boat employing it. (Fig. 2).

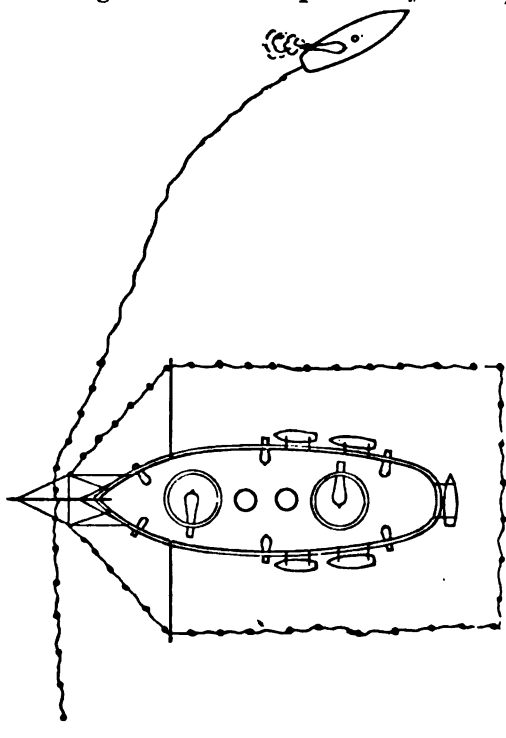


Fig. 3.

For attacking a vessel at anchor, a steam-launch or torpedo-boat having great speed, and protected from small-arms, &c. (of which there are many modern designs), would steer to cross her bow at full speed, having the line of torpedoes bighted up on an iron slipping-rod on the "off" side from the enemy, ready for paying itself out in a taut line as soon as the end torpedo is let go, which would be done on approaching, so that the line would be laid out with some torpedoes on either bow

(Fig. 3), and would continue on at full speed, paying out the extra coil, and then steer so as to bring the line against the enemy's bow, probably assisted by tide or current, and explode the whole line at once when it had fouled the vessel or her obstructions. A second attacking boat follows directly after the explosion of the first line, and if the obstructions only are destroyed the second line would probably involve the vessel herself.

Picket-boats, so much written of, unless they are steaming round and round their vessel at full speed, could not get up a velocity in time to interfere with the attacking boat, and even in the event of a launch combat, the vessel herself could not distinguish friend from foe at night, and a reserve torpedo-boat would involve her in another line.

To attack a vessel under way, tactics as represented in Fig. 4 might

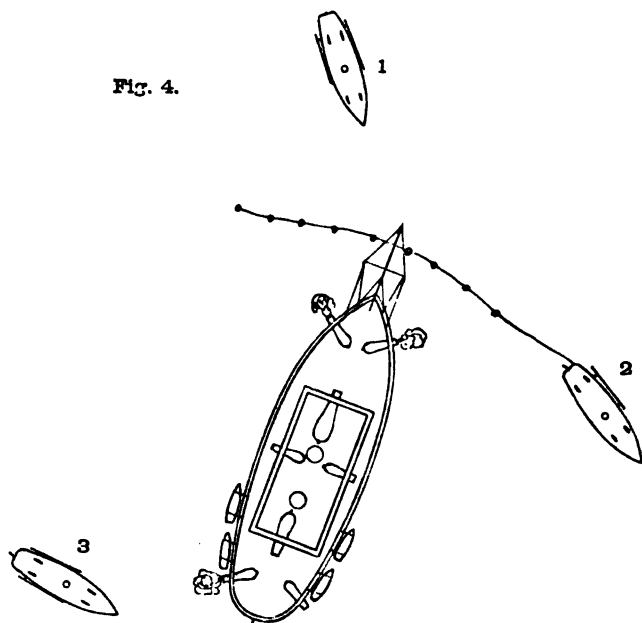


FIG. 4.

be employed—torpedo-boat No. 1 rounding the vessel's bow at full speed and slipping her line, while boat No. 2 is ready to head her off in case she cripples No. 1 or changes her course, or only has her torpedo-catcher blown off, and No. 3 steering for the stern of the enemy in case she can stop and back in time to avoid the lines ahead.

The advantages of this system of attack would be that the speed is not slackened near the enemy, and probably not at all; that no *fine* judgment is necessary in steering and in laying the torpedoes (as in all other systems of attack); that it would be very difficult to cut or intercept the line on account of its depth below the surface and the large number of torpedoes, and that no preparation or rigging-out is necessary near the enemy, but that one man has only to judge when to slip the first torpedo of the line. The torpedo-boat's screws would, of course, be protected to prevent fouling their own lines, or the Herreshoff center-screw boat would be an excellent thing for this purpose, combining great speed

with remarkable maneuvering power, one of them recently circling about the bows of a fast bay steamer with impunity.

For defense against rams, &c., an iron-clad could have a line of torpedoes rove through a block on a boom, forward, as in Fig. 5 (No. 1) with the buoys stopped along the side at the water-line, and the torpedoes under water. Suppose, then, a ram to be approaching her from any point on the port side; she would steer so as to bring it to bear nearly on the beam when nearing her (No. 1, Fig. 5, arrow), and would then starboard her helm and release the buoys from the side by a single slip-toggle, and continuing her way with starboard helm, the line would take the position in No. 2, Fig. 5, and could be exploded at will when the ram had fouled the buoys. If obliged to change her course the line would be slacked out, and a slip-line from the quarter to the running-port would haul it to the taffrail.

Such a line was experimented with in a crude way by the *Alarm* last winter. There being no boom forward and the speed low, the buoys had a tendency to tow alongside at first, but afterward stood out, and the torpedoes were fired in succession from the outer one, in.

If there should be any difficulty of their swinging out, the torpedo-line could be bighted together and hanging under water from the end of the boom, with the torpedoes towing in close order in line, when they could be shipped at the proper time and would then lay out nicely. This plan can be much improved, and is so suggested, a system for protection against rams being of great importance.

Fig. 5.

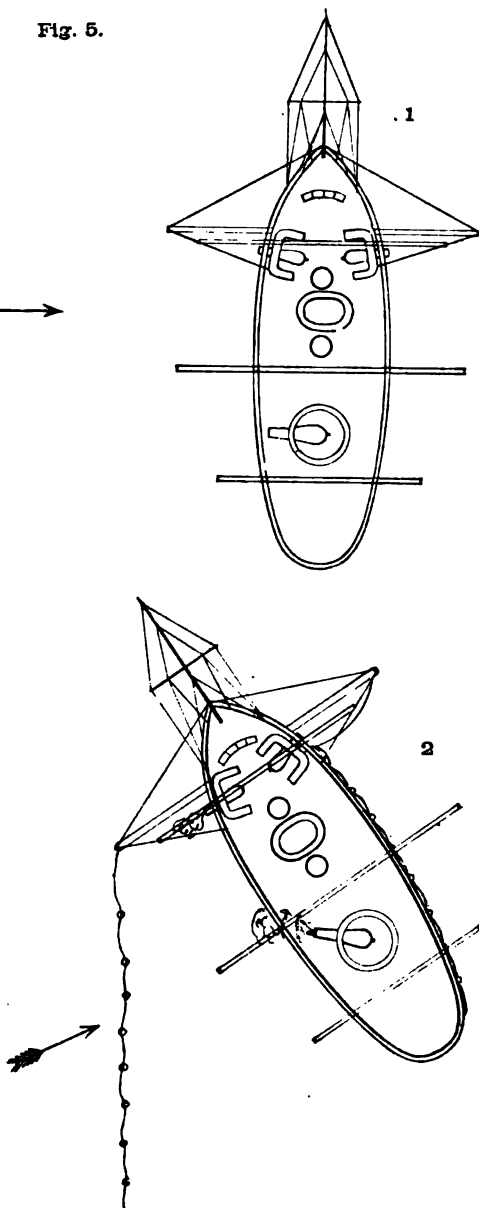
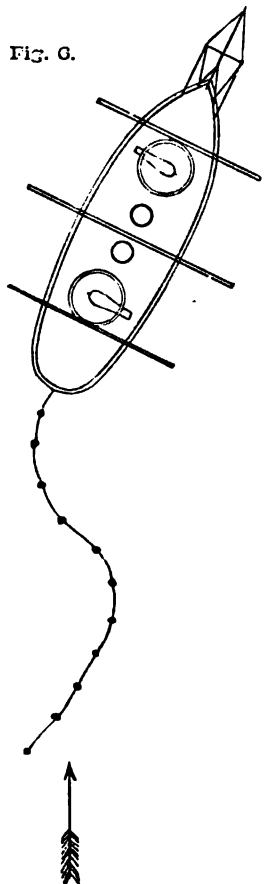


FIG. 6.



It is probable that a ram fitted with a false bow, and 50 pounds dynamite on a long machine bar, could detonate her way through a line of ordinary torpedoes and ram the vessel.

A vessel being pursued by another, might protect herself to some extent by towing a line of torpedoes astern and judiciously changing her course. (Fig. 6.)

To protect a vessel at anchor by lines of simple torpedoes, in addition to other defenses, has probably occurred to many. The easily-made torpedo-lines above described would answer very well for this purpose.

The previous remarks on those systems of attack and defense already in use, are submitted simply as a personal opinion, gathered from the history of their use, and observations of numerous experiments.

Very respectfully,

FRED'K H. PAINE,
Lieutenant, U. S. N.

NEWPORT, R. I., July 22, 1878.

Commodore WM. N. JEFFERS, U. S. N.,
Chief of Bureau of Ordnance.

Forwarded. Lieutenant Paine spoke of an exhibition to the Secretary from the Alarm of a defense by torpedoes against ramming, and I asked him to put it in writing for the benefit of the station.

K. R. BREESE,
*Captain, U. S. N., Inspector of
Ordnance, in charge.*

TORPEDO STATION,

Newport, R. I., August 30, 1878.

SIR: During the course of instruction just completed there have been given 25 lectures of 2 hours each, and 14 periods of practical work, each period covering at least 2 hours.

Lectures have been delivered on the following subjects and in the order given:

One on the "manner and means of exploding torpedoes now employed in the service."

One on the "preparation of the service spar-torpedo for use."

Six on the "spar-torpedo" (description manufacture; and use of all articles connected with; permanent wires; torpedo-fittings for ships; splicing; experimental, service, and foreign boat; fittings; torpedo-boats; bow and beam fittings; comparison of bow and beam spars).

Five on "towing-torpedoes" (experimental, Harvey, foreign; comparison of different towing-torpedoes; mode of handling and defense against).

Four on "movable torpedoes" (mechanically-controlled launches, Ericsson's, Lay's, and others).

One on the "defense of ships against torpedo attacks."

Two on the "defense of harbors, clearing channels, and the removal of obstructions."

Two on the method of locating faults in service D. E. machines.

Two on "hand-grenades," "charges and effects," "effect of nets on contact mines," "improvised ground-torpedoes."

One general review.

The practical work has followed the lectures on the different subjects, illustrating their practical application.

Each member of the class has been required to—

1st. Detect and correct faults liable to occur in the electrical apparatus used in exploding torpedoes.

2d. In filling, fusing, and exploding a service exercise torpedo (5 pounds).

3d. In filling, fusing, and exploding from a boat, a service 75-pounder torpedo.

4th. In improvising and exploding a torpedo, using as a case jugs, cans, bottles, &c., provided for the purpose.

5th. In fusing, working, and exploding a service 100-pounder torpedo from a ship.

6th. In fitting, handling, and working the Harvey torpedo, making an attack upon a moving target (schooner), the target not trying to evade the attack.

7th. In making an attack with the Harvey torpedo against a target which was maneuvered to evade the attack.

Practical illustration was also given to the class of the working of movable torpedoes, mode of making a flying shot with a beam spar-torpedo from a fast torpedo-launch, and the working of mechanically-controlled launches and the effect of dynamite as an explosive used in spar-torpedo exploded from a launch.

Very respectfully, &c.,

J. S. NEWELL,

*Lieutenant, U. S. N., Assistant Inspector of Ordnance,
and Instructor in Torpedoes.*

Capt. K. R. BREESE, U. S. N.,

Inspector Ordnance, in charge of Station.

UNITED STATES TORPEDO STATION,
Newport, R. I., August 31, 1878.

SIR: Lectures on the following subjects have been delivered before the class under instruction during the term now ending:

1. Definitions of terms and galvanic batteries.
2. Galvanic batteries, continued.
3. Electric currents.
4. Electric currents, continued.
5. Electric currents, continued.
6. Galvanometers.
7. Measurement of currents.
8. Laws of electric resistance.
9. Heating effects of currents.
10. Heating effects of currents, continued.
11. Measurement of resistance.

12. Measurement of resistance, continued.
13. Measurement of electro-motive force and battery resistance.
14. Measurement of resistance battery, continued.
15. Arrangement of battery-cells for particular purposes.
16. Magnets and magnetism.
17. Magnets and magnetism, continued.
18. Electro-magnetism.
19. Electro-magnetic induction.
20. Laws of electro-magnetic induction and description of Wilde's small machine.
21. Farmer's A machine.
22. Electrical apparatus of Lay torpedo-boat, No. 1.
23. Farmer's C machine, and how to arrange groups of fuses, so as to get the maximum effect from a known source of electricity.
24. Siemens's and Farmer's machines, considered as types of high and low resistance machines.
25. Description of Wheatstone's, Beardslee's, Breguet's, Gramme's, and Siemens's (Hefner-Altenek) machines.
26. Frictional electricity and frictional machines.
27. Comparative value of the various sources of electricity for torpedo purposes on board ship.

This course of lectures has been supplemented by a course of practical work of four hours per week. This has consisted principally of setting up batteries, measurements of electro-motive force, resistance of conductors and of batteries, electric currents required for particular work, using the various methods, measurement of machines, calculation of resistance from dimensions and material of conductors, calculation of number and arrangement of battery cells necessary to perform certain work, and other similar work. The lack of apparatus is very seriously felt in this practical work.

Very respectfully,

A. R. COUDEN,

Lieutenant and Assistant Inspector of Ordnance.

Capt. K. R. BREESE, U. S. N.,

Inspector of Ordnance, in charge of Station.

UNITED STATES TORPEDO STATION,
Newport, R. I., August 31, 1878.

SIR: The instruction in fuse-making for the term just ended has been as follows:

Each officer under instruction has been required to make five service "D. E." igniters; three service fuses; one "M. E." igniter; one "F." igniter; one each of Bradford's, Barber's, Moore's, and Pillsbury's improvised fuses, and one original improvised fuse.

Instruction has been given in the method of testing fuses for the defects likely to occur in them, and as to the selection of wire or other material suitable for making the bridge of an igniter.

Lectures have also been delivered upon the following subjects:

1. The various methods of determining the position of a vessel with reference to any torpedo or group of torpedoes in a defensive system, by observation or intersection, the arrangement of the torpedoes and cables, and the electrical apparatus used in testing and exploding such a system.
2. The construction and use of circuit-closers, circuit-breakers, and

circuit-shunts, the English shutter apparatus and Converse's circuit-indicator, and the arrangement of batteries and circuits for use with those instruments.

Four hours per week have been given to this instruction.

Very respectfully, your obedient servant,

WASHBURN MAYNARD,

Lieutenant and Assistant Inspector of Ordnance.

Capt. K. R. BREESE, U. S. N.,

Inspector of Ordnance, commanding Station.

UNITED STATES TORPEDO STATION,

August 31, 1878.

SIR: Two courses of lectures have been given in the chemical department during the time of instruction just finished. The subjects of these lectures have been:

CHEMISTRY.

1. Chemical theory; quantivalence; symbols; formulæ.
2. Equations; classification of the elements; oxygen.
3. Atmosphere; ozone; hydrogen.
4. Water; natural waters.
5. Methods of water analysis; purification of water; nitrogen.
6. Compounds of nitrogen and oxygen; compound radicals; acids.
7. Nitric acid; ammonia and ammonium salts.
8. Fluorine; chlorine.
9. Chlorates; hydrochloric acid; bromine and iodine.
10. Sulphur; compounds of sulphur; sulphuric acid.
11. Phosphorus; arsenic; antimony; silica and silicates.
12. Carbon and oxides of carbon; making liquid carbonic acid and its use.
13. Organic chemistry.
14. Metals; metallurgy; smelting; metallurgy of iron.
15. Electrical chemistry.

EXPLOSIVES.

1. Explain reactions and effects; composition of explosives.
2. Gunpowder: saltpeter, sulphur, charcoal.
3. Gunpowder: processes of the manufacture; proportions.
4. Gunpowder: products of explosion; temperature; pressure and work.
5. Nitro-glycerine; glycerine; chemical relations of nitro-glycerine.
6. Nitro-glycerine; dynamite.
7. Dynamite; gun-cotton.
8. Gun-cotton; picric acid.
9. Picrates and picric powder; fulminate of mercury; chlorate mixtures.
10. Fuse compositions and mixtures; chloride, bromide, and iodide of nitrogen; explosive agents in torpedoes.

Interleaved copies of the pamphlet "Notes on Explosives" were supplied to the class, and the lectures on this subject were in addition to or in explanation of the matter in the pamphlet.

For the assistance of the officers of the class, printed sheets, giving abstracts of the lectures on chemistry, were furnished them for use in getting notes of the lectures.

A copy of the notes and a set of the printed sheets is appended.

Very respectfully,

WALTER N. HILL,
Chemist.

Capt. K. R. BREESE, U. S. N.,
Commanding Station.

Questions for examination, 1878.

TORPEDOES.

1. Give the torpedo outfit, and explain the service 100-pounder (construction and handling); the 100-pounder socket and mode of attaching to spar; the spar with its attachments (Museum). Fire 100-pounder from Nina.

2. Explain the service 75-pounder torpedo; 75 pounder socket and mode of attaching to spar and the present boat-fittings (Museum.) Fire 75-pounder from launch No. 2.

3. Explain the manner of filling, fitting, fusing, and firing torpedoes, illustrating by fitting a fuse and exploding it in a spindle, using machine No. —. (Torpedo room.)

4. Give contents, and explain their use, of wire boxes; what distinction is made between them and why? (Museum.)

5. Explain use and lead of permanent wires; what kind of wire is used; explain terminal electric switch and the testing and firing-plate. (Torpedo room.)

6. Explain service wire, object of and how insulated; and method of making splices and insulating them—simple, fork, and cross splices. (Torpedo room.)

7. Explain the Harvey towing-torpedo—mode of handling, fitting and means of firing and the defense against the same (Museum) with practical use from Nina.

8. Explain the Danish, French towing-torpedoes, and compare them with the Harvey. (Torpedo room.)

9. Explain the Ericsson torpedo. (Lay boat-house.)

10. Explain the Lay torpedo No. 1.

11. Explain the Lay torpedo No. 2.

12. Explain monitor and tug fittings.

13. Give contents, and explain their use, of supply-box.

14. Explain the "A" machine.

15. Explain the firing-key.

16. Explain the "C" machine.

17. Explain system of defense against torpedoes.

18. Explain system of clearing channels and removing obstructions.

19. Explain exercise torpedo—what for and how it is used, and fire one from launch No. 3.

20. Explain boat-fittings other than service.

21. Explain manner of breaking chains and the construction and use of hand-grenades.

22. Explain various towing-torpedoes experimented with here—objections to the Harvey and reasons.

23. Various foreign torpedo-fittings for the use of spar-torpedoes either ahead or abeam, and a comparison of the two methods.

24. Test permanent wires and apparatus connected for continuity.
25. Test reel of wire and spar leading for insulation.
26. Give rules for and find fault in "C" machine No. —.
27. Give rules for and find faults in wires.
28. Give rules for and find fault in "A" machine No. —.
29. Give rules for and find faults in firing-key No. —.
30. Illustrate and explain attack against a vessel moored head and stern with the Harvey.
31. Illustrate and explain attack against a vessel at single anchor with the Harvey—crossing the bow.
32. Illustrate and explain attack against a vessel at single anchor with the Harvey—passing on either side.
33. Illustrate and explain attack against a vessel at single anchor with the Harvey—coming up astern and passing on either side.
34. Illustrate and explain attack against a vessel under way with the Harvey—not maneuvering to avoid—from ahead.
35. Illustrate and explain attack against a vessel under way with the Harvey—maneuvering to avoid—from ahead.
36. Illustrate and explain attack with the Harvey against a vessel under way—not maneuvering to avoid—from astern.
37. Illustrate and explain attack with the Harvey against a vessel under way—maneuvering to avoid—from astern.
38. Illustrate and explain attack with the Harvey against a vessel under way—not maneuvering to avoid—by crossing the bow.
39. Illustrate and explain attack with the Harvey against a vessel under way—maneuvering to avoid—by crossing the bow.
40. Illustrate and explain attack with the Harvey against a vessel under way—not maneuvering to avoid—by crossing the bow.
41. Illustrate and explain attack with the Harvey against a vessel under way—maneuvering to avoid—by crossing the stern.
42. Illustrate and explain making a flying shot with the Harvey.
43. Illustrate and explain the defensive use of the Harvey.

QUESTIONS IN ELECTRICITY AND FUSES.

1.

1. Explain the construction of the D. E. igniter and fuse.
2. Give the dimensions of the material of the bridge.
3. Explain the action of the fuse in a torpedo.

2.

1. Explain the testing apparatus and the manner of testing an igniter, giving the limits allowed for the service igniter.
2. Give the requisites for a wire suitable for the bridge of a "fine-wire bridge" igniter.
3. What is an "improvised fuse"? Explain how they can be made.

3.

1. What are the advantages of a "fine-wire bridge" igniter?
2. Explain the construction of a detonating fuse, and for what purpose it would be used.
3. How would determine current necessary to do any particular work.

4.

1. Explain the construction of a high-resistance plumbago or M. E. igniter.

2. What defects are liable to occur in the service D. E. igniter and fuse?

3. How does heat developed in conductors by electricity vary? $H = R S^2 t$.

5.

1. What are the disadvantages of a high-resistance plumbago igniter?

2. Given a length of wire whose electrical properties are unknown, and a Farmer C machine, how determine whether the wire is suitable for the bridge of an igniter to be fired by that machine?

3. How is advantage taken of the heating effects of currents in firing torpedoes?

6.

1. Explain the construction of a fuse-measuring apparatus which could be made on board ship.

2. What defect in a service D. E. igniter would the test of the "firing-key" fail to discover, and how could it be found?

3. What general rule should guide in the arrangement of battery-cells in order to get the maximum effect?

7.

1. What are requisites in a good battery?

2. What are the electrical dimensions of a battery, and how are they measured?

3. How does the resistance of conductors vary?

8.

1. Explain the use and advantages of Wheatstone's bridge.

2. How does temperature affect resistance of metals and liquids?

3. What are principal substances used for insulating conducting wires?

9.

1. How does pressure of superincumbent water affect insulation of gutta-percha insulated cables?

2. What are principal objections to friction as a source of electricity for torpedo uses?

3. Describe station battery.

10.

1. Describe Converse's modification of Le Clanché cell.

2. What batteries are best fitted for use on shipboard?

3. What advantages and disadvantages have batteries as compared with machines for torpedo purposes on board ship?

11.

1. Having a source of electricity (machine or battery) whose E. M. F. is 16.8 volts, and internal resistance of 3.5 ohms, how many fuses, each

having .75 ohms resistance, and requiring .6 veber to fire, can you fire using leading-wires having .5 ohms resistance?

2. Give general descriptions of Farmer's A and C machines, giving average E. M. F. and int. res.

3. How do leaks and branch circuits of any sorts affect the total resistance of a circuit and current in simple parts, and how is current divided among the branches?

12.

1. Why is it that with service machines you can explode a fuse through leading-wires of naked wire in salt-water of moderate length? Could you still fire if your leading-wires were not only naked but in contact with each other?

2. Describe manner of the setting up of batteries; why amalgamate zinc?

3. Describe instruments used in electrical measurements.

13.

1. Give formula for strength of current, and explain meaning of E. M. F., current and resistance.

2. How may battery-cells be arranged, and what is effect?

3. What care should batteries receive?

14.

1. How could you, with A machine and firing-key, test insulation of cables on board ship?

2. Describe a gravity cell.

3. How can you determine the direction of current flowing in an electro-magnet?

Questions for examination September 2, 1878.

CHEMICAL DEPARTMENT.

1. What is an explosive reaction?

2. Upon what do the force and violence of an explosive reaction depend?

3. Give instances showing the influence of the physical or mechanical condition of a body upon its explosion.

4. What effect has the mode of firing upon the explosion?

5. What is detonation, and how is it produced?

6. General composition of explosive substances.

7. Distinction between explosive compounds and explosive mixtures.

8. Classes of explosive mixtures.

9. Sources and purification of saltpeter for gunpowder.

10. Refining sulphur for gunpowder.

11. Preparation of charcoal for gunpowder.

12. Composition and proportions of gunpowder.

13. Outline of the process of the manufacture of gunpowder.

14. Products of the explosion of gunpowder.

15. Temperature, pressure, and work of the explosion of gunpowder.

16. Influence of the physical and mechanical condition of gunpowder on its explosion.

17. General composition of an explosive compound.

18. Chemical relations of glycerine and nitro glycerine.
19. Explain the process of making nitro-glycerine.
20. Composition and properties of nitro-glycerine.
21. Mode of firing nitro-glycerine.
22. Comparative force of nitro-glycerine.
23. Products of the explosion of nitro-glycerine.
24. Method of making dynamite.
25. Properties of dynamite.
26. Comparative force of dynamite.
27. Nitro-glycerine preparations other than dynamite.
28. Composition and mode of formation of gun-cotton.
29. Explain method of making long-stapled gun-cotton.
30. Explain method of making Abel's compressed gun-cotton.
31. Properties of and mode of firing gun-cotton.
32. Products of the explosion of gun-cotton.
33. Comparative force of gun-cotton.
34. Composition and chemical relations of picric acid and the picrates.
35. Composition and properties of picric powder.
36. Use of picric powder and advantages claimed for it.
37. Composition and chemical relations of the fulminates.
38. Preparation of fulminating mercury.
39. Properties and uses of fulminating mercury.
40. General composition and properties of the chlorate mixtures.
41. Use of fuse compositions.
42. Method of making liquid carbonic acid and its use as motive power for automatic torpedoes.
43. Compare the different explosive agents for use in torpedoes.

UNITED STATES TORPEDO STATION,
Newport, R. I., September 7, 1878.

SIR: In obedience to the department's order of the 21st ultimo, the board convened on the 2d instant for the purpose of witnessing the examination of the officers under instruction at the torpedo station, and concluded its labors this day. The board takes great pleasure in reporting to the Bureau of Ordnance that it has been particularly and most favorably impressed with the proficiency displayed by the officers under instruction, as well in the practical exercises as in the theoretical course just concluded, and that, so far as can be judged with all the lights available in so short a session, the torpedo station has sustained its honorable and increasing reputation, and deserves the liberal support of the department and of the country.

The board was further impressed by the practical character of the examination itself as a great step in advance of the system pursued some years ago. The board deems the effort on the part of Captain Breese to divest the course of its originally somewhat pedantic character to be a movement in the right direction, as one calculated especially to increase the zeal and attention to study of the older members of such classes as may present themselves or be detailed for instruction, simply because, with men of experience, intelligence, and mature age, application to study is more apt to be induced, if the idea is not constantly presented to their minds that they are, as it were, school-boys in a state of pupilage.

The board would, however, recommend that the term of instruction commence on the 1st of May, instead of in June as now, with a view of

terminating the course before the fashionable world reaches Newport and the gayety of this gay watering-place commences. The full reasons for this recommendation it is not necessary to state, as they are obvious to those familiar with Newport life at this season.

The board deems it but mere justice to state to the Bureau that in its judgment the present officer in charge, Capt. K. R. Breese, is entitled to the greatest praise for the order, neatness, and efficiency which is noticeable in all departments of the station under his command, although he has been somewhat crippled by reason of the small force under his orders, and with a view to increased efficiency it would respectfully recommend that the crew of the *Nina* be specially augmented to the extent of 25 men.

In conclusion, although not perhaps germane to this report, the board would call the attention of the Navy Department, through the Bureau, to the unusual expense necessarily entailed upon the Inspector of Ordnance in command in entertaining persons of distinction who visit the station (and there are many such attracted by its reputation both at home and abroad), and beg leave to recommend that, if possible, the officer in command of the torpedo station be hereafter allowed the highest pay of his grade with a view of meeting the inevitable and unavoidable demands upon his purse.

All of which is respectfully submitted by

Your obedient servants,

C. H. BALDWIN,
Commodore U. S. N. and President of the Board.

C. H. WELLS,
Captain U. S. N. and Member.

RICHARD W. MEADE,
Commander U. S. N. and Member.

WM. WHITEHEAD,
Commander U. S. N. and Member.

W. N. JEFFERS, U. S. N.,
*Chief of the Bureau of Ordnance,
Navy Department, Washington, D. C.*

UNITED STATES TORPEDO STATION,
Newport, R. I., September 9, 1878.

COMMODORE! I have to report that the course of instruction closed on Saturday, the 31st August, and that on Monday, the 2d instant, Commodore Baldwin and the officers composing the board of visitors came to the station, were received in the usual manner, and after organizing and inspecting the shops, laboratories, &c., adjourned to meet the next day at 9.30 a. m.

On the morning of the 3d the board were received with a subaqueous salute, and at the library the officers of the class in attendance and under instruction were presented.

The examination then commenced, varying from last year only in its being more thorough.

Questions had been prepared, illustrative of the whole course and sufficient in number to give every officer three, each, in torpedoes, electricity, and chemistry and explosives, as will be seen by the accompanying list of questions.

The list of questions was submitted to the board, and officers were assigned by them to answer.

The thoroughness of the instruction given was indicated, and the aptness of the officers was shown in this examination to be in direct ratio to their note and examination books.

The officers under instruction were required to submit a paper to me on the Offensive use of Torpedoes, and those in attendance were invited to do the same. Commanders Stanton and Carpenter were the only ones of the latter who did so, and their papers are valuable and suggestive.

The papers of the class under instruction on this subject vary in merit, as may be supposed; but as the production of the least meritorious evoked considerable thought and research, good results may be considered to have been attained in each case.

Lieut. D. P. Mannix, of the Marine Corps, with the authority to avail himself of the facilities of the station and the course of instruction in torpedoes, has most assiduously done so, and reflects much credit upon himself and the Marine Corps.

The officers of the station have continued to add to their knowledge and, consequently, their effectiveness as instructors. The Navy should have great reason to be very proud of them. Professor Hill continues his efficient services, every year becoming more and more valuable.

Professor Farmer, the electrician, I regret to say, is still much of an invalid, and, although attending the course of lectures in electricity with much discomfort to himself, beyond a few occasional remarks, he has not been able to lecture or to give much time to station work.

Quite a programme was prepared to give a practical exhibit to the board by all the officers, but the failure of the Tallapoosa to arrive with supplies prevented everything beyond the use of dynamite torpedoes and exercise torpedoes.

Towing the Harvey torpedo against the Joseph Henry was carried out very successfully, and the use of both vessels, as well as the skill of the officers in charge, was well shown.

In conclusion, I wish to say that the class under instruction have been generally very attentive and zealous, and showed great interest in the course.

The commanders in attendance have followed the example of those of last year, evincing the greatest interest and performing everything required of the class, except in submitting their note-books, &c., which was not required.

Respectfully, your obedient servant,

K. R. BREESE,

Captain U. S. N., Inspector of Ordnance, in Charge of Station.

Commodore W. N. JEFFERS, U. S. N.,

Chief of Bureau of Ordnance, Washington, D. C.

UNITED STATES TORPEDO STATION,
Newport, R. I., October 29, 1877.

SIR: I submit herewith drawings and explanations of electrical apparatus used in connection with appliances fitted to a steam-launch used at this station as an experimental offensive torpedo, which steam-launch and its special fittings have been fully described in drawings and plans previously submitted.

Practical tests have demonstrated that the method of paying out the wire from a tub in which it is coiled in a series of flemish coils, alter-

nating from in and out to out and in, is equal to other methods in efficiency and superior to them in simplicity. The tub fitted with a water-tight cover would keep a coil of wire immersed in water and ready for use in any climate. Experiments have shown that the wire contained in several tubs connected in series will pay out through a central fair-leader quite as readily as from one tub placed directly under the fair-leader. The prolongation of the tiller abaft the rudder, with a fair-leader for keeping the wire clear of the screw, works well in practice. In case the wire coils should all run out it would still be possible by this arrangement to steer the boat when towing the wire, even in a strong tide-way, which would be impossible, or at least very difficult, were the wire held over the stern by a fixed out-rigger. The apparatus for working the links of the engines is precisely similar to that used for moving the tiller, as shown in the detailed drawings submitted in February last, with the exception of the removal of the spring from the "go-ahead" side of the magnet-spindle. The effect of this is to keep the links on that side after they have once been put over, whether the electric current is turned on or off; and to keep them amidships after once being placed there, by sending a current through the "stop" magnet, unless the current should be kept on the latter magnet, in which case the links would be reversed and the engines would back as long as the signal-key were closed. Therefore, when the engines are stopped or going ahead, the full electric current is available for steering or performing any of the other duties assigned to it. For dropping the torpedo-spars just before the attack, I propose to use toggles made of short glass tubes inclosing service-igniters. To drop either torpedo-spar it would be only necessary to turn the current on the igniter, thereby shattering the toggle. Countermines would be dropped in the same manner. The electrical apparatus is equally applicable whether a local battery is used in the boat or all the battery-power is placed at the starting point.

As I hope to show in a short time, it will be easy to arrange an apparatus by which the operator at the starting-point may read the indications of the steam and water gauges and the revolutions made by the engines. A boat of this kind, besides being of use as an offensive torpedo or carrier of countermines, might be of great service to a vessel entering a channel suspected of containing torpedoes, by going ahead with a bight of chain suspended from the ends of a thwart-ship spar and armed with grapnels. The chances would be in favor of not exploding any torpedo that might be caught, until after the chain was partially taut and the launch just out of the dangerous circle. One of the chief merits of this combination of electrical and steam apparatus is the ease with which any of the service steam-launches or cutters may be equipped with it without in any way interfering with the performance of their usual duties. It is of comparatively simple construction and does not require any special electrical or mechanical knowledge to enable any one to understand it and keep it in order.

Very respectfully,

T. C. McLEAN,

Lieut. U. S. N., Assistant Inspector of Ordnance.

Capt. K. R. BREESE, U. S. N.,

Inspector of Ordnance, in charge of Torpedo Station.

UNITED STATES TORPEDO STATION,
Newport, R. I., October 29, 1877.

SIR: I respectfully submit the following report in regard to the manufacture of, and experiments with, electric igniters and fuses for torpedoes during the year.

The copper case D. E. igniter and the fuse which were approved by the bureau in 1874 have been manufactured for issue to the service, and for experimental work at this station. The results obtained with them have been uniformly good, and no reports have been received of defects due either to original faults in manufacture or to deterioration in those issued to the service.

In August last the supply of bridge-wire, which has been used in making igniters, became exhausted, and a new supply was obtained, which, though intended to be the same, differed somewhat from the old. A comparison of the two wires is given in the following table:

	Material.	Diameter.	Tensile strength.	Resistance, ohms.		Strength of current required to fire G. C.	Length of bridge.
				Cold.	At firing-point of G. C.		
Old wire	2 parts silver 1 part platinum	.0025	6 oz . . . . .	.42	.54	.60, Weber	$\frac{3}{4}$ of an inch.
New wire	Same	.0022	10.5 oz . . .	.55	.60	.562, Weber	$\frac{3}{4}$ of an inch.

The new wire has a smaller diameter than the old, which gives it a higher specific resistance, but it has a greater tensile strength, its resistance increases less as its temperature is raised, and less strength of current is required to heat it to the firing-point of gun-cotton. Although its resistance is slightly greater, Professor Farmer recommends retaining the same length of bridge, $\frac{3}{4}$ of an inch, as the small increase in its resistance is of much less consequence than would be the increased difficulty of manufacture should it be shortened sufficiently to get the resistance hitherto used, .42 of an ohm. With this length the resistance of the bridge would be .55 of an ohm, and the igniters can be readily made between the extreme limits of .52 and .58 of an ohm.

The copper cases of igniters, which have been in store for a considerable length of time, have been found to be coated on the inside with sulphide of copper, showing chemical action between the case and the sulphur of the gunpowder filling. Although this action is so slow that none of the igniters examined thus far have been injured by it, it seems advisable to substitute brass for copper as the material for the cases, in order to lessen if not prevent it entirely. The present is a favorable time for making this change, as the brass case will be a good distinguishing mark for igniters made with the new bridge wire.

Two minor changes are proposed in the fuse, viz:

1st. The outer end of the wooden plug is lengthened and scored out for the terminal wires, as shown in Figs. 1 and 2, instead of being cut away to a flat surface. With this form of plug there is less danger of breaking the terminals and also of short-circuiting the fuse.

2d. A rubber cot or sleeve is substituted for the wrapping of greased lamp-wicking as an insulation for the splices between the leading and terminal wires. The cot C and the manner of using it are shown in Figs. 3, 4, and 5. It is a piece of flexible rubber tubing of such a diameter as to be readily slipped on over the fuse A. After splicing the leading

wires it is drawn over the end of the wooden plug B, and secured by a metallic paper-fastener, D, and a seizing, E, Fig. 5.

With these changes the igniter and fuse seem to meet all requirements in a very satisfactory manner.

I am, sir, very respectfully, your obedient servant,

WASHBURN MAYNARD,

Lieutenant and Assistant Inspector of Ordnance.

Capt. K. R. BREESE, U. S. N.,

Inspector of Ordnance, in charge of Station.

Respectfully forwarded and approved to the Chief of Bureau of Ordnance.

K. R. BREESE,

Captain U. S. N., Inspector of Ordnance, in Charge.

No. 5.—BUREAU OF NAVIGATION.

BUREAU OF NAVIGATION, NAVY DEPARTMENT,

Washington, October 1, 1878.

SIR: In compliance with your order of the 20th August, I have the honor to submit herewith the estimates of appropriations required for the fiscal year ending June 30, 1880, for this Bureau and the branch of the naval service under its cognizance, and for the support of the Hydrographic Office, the Naval Observatory, and the Nautical Almanac Office.

Very respectfully, your obedient servant,

WM. D. WHITING,

Chief of Bureau.

Hon. R. W. THOMPSON,

Secretary of the Navy.

ANNUAL REPORT OF THE CHIEF OF THE BUREAU OF NAVIGATION, 1878.

NAVY DEPARTMENT, BUREAU OF NAVIGATION,

October 30, 1878.

SIR: I have the honor to submit the following report of the Bureau of Navigation for the past year, together with the estimates for its support, and for the expenditures that will probably be required in that division of the naval service committed to its immediate charge, for the fiscal year ending June 30, 1880. Included in this report, and transmitted herewith, are the reports and estimates of the several offices under its cognizance, and an abstract of offers for supplies received.

NAVIGATION.

The number of Navy compasses has been augmented during the past year by 49 new ones. The style of liquid steering and standard compasses adopted for use on board of all classes of naval vessels is the 7½-inch compass, fitted for receiving the same size azimuth circle. This compass is an excellent instrument and as nearly perfect as it can be made. The supply now available for use is sufficient to meet the probable demands of the service. A number of azimuth circles of an old

pattern have been changed into ektropometers, or dumb compasses, at moderate expense.

My predecessor had taken steps that every station be provided with a complete standard set of instruments for making extended magnetic observations over the whole globe in conformity with the well-digested methods now employed for that purpose. To fit ourselves for the latter, it was found advisable to ask the department to send Prof. B. F. Greene, of the Navy, abroad to examine the methods there in use, who has successfully fulfilled this duty, and whose appended report will not fail to be satisfactory to the Department and to those interested theoretically and practically in the results now attainable, if the requisite appropriations can be had for purchasing the necessary instruments.

As authorized by the Department, the Bureau will provide for one vessel on every foreign station a complete apparatus for taking deep-sea soundings, to be employed when the other purposes of the vessel will permit it and as the commanding officer of the station may direct, or when specially ordered by the Department. The apparatus consists of the machine designed by Sir William Thomson, and modified according to the practical experience of Capt. George E. Belknap, U. S. N., fitted for using pianoforte steel-wire instead of hemp-line, and for obtaining ocean-bottom by the Belknap specimen-cylinders.

The system of taking simultaneous meteorological observations by all naval vessels on the different stations (daily at 0^h 43^m p. m., Greenwich mean time), inaugurated at the request of the Chief Signal-Officer of the United States Army, is now in successful operation, the necessary instruments, except barometers, having been kindly loaned for the purpose by the Army Signal Office.

HYDROGRAPHY.

The Hydrographic Office is steadily gaining in importance and usefulness by the publication of new charts, sailing directions, notices to mariners, and hydrographic notices, which latter are printed and distributed immediately after the receipt of reports of newly-discovered rocks and other dangers to navigation; of changes in the buoys, beacons, and lights, and whatever other improvements are made which may affect the navigation of the high oceans, as well as the bays and harbors of the world.

I have the pleasure to invite your attention to the report of the Hydrographer, herewith appended, showing in detail the work performed and in progress in the Hydrographic Office.

Although there were no specific appropriations for the purpose, some vessels have been satisfactorily employed, under instructions from the Department, in collecting hydrographic information, without detracting much from their usefulness as cruisers.

The United States steamer *Essex*, Commander W. S. Schley, has made lines of deep-sea soundings across the Atlantic Ocean from Cape Henry to San Paul de Loando, and thence to Cape Frio, Brazil; and this vessel is now under orders to sound off the mouth of the La Plata River.

The United States steamer *Adams*, Commander Frederick Rodgers, discovered the Rodgers Bank, and examined the Hotspur Bank off the coast of Brazil.

The United States steamer *Tuscarora*, Commander J. W. Philip, has been sounding off the coast of Lower California, and surveying the Tar-tar Shoal and part of the coast of Mexico.

The United States steamer *Gettysburg*, Lieut. Commander H. H. Gorringe, is still employed in collecting data for sailing directions for the Mediterranean, two volumes of which have already been issued.

The United States steamer *Guard*, Lieut. Commander F. M. Green, has established, by means of electric telegraph signals, the difference of longitude between Lisbon, Madeira, Cape de Verdes, and Pernambuco, and has measured the difference in longitude between Rio de Janeiro, Montevideo, and Buenos Ayres. The cable between Pernambuco, Bahia, and Rio de Janeiro being unfortunately broken, that measurement could not be made at present, and the vessel is now on her way back to the United States.

The United States steamer *Alaska*, Capt. George Brown, has taken a number of deep-sea soundings in the vicinity of a reported rock, in latitude $25^{\circ} 34'$ north, longitude $41^{\circ} 23'$ west, finding not less than 2,105 fathoms, thereby disproving the existence of a rock in the said locality.

The United States steamer *Enterprise*, Commander T. O. Selfridge, has been employed, under your orders, in surveying the Amazon and Madeira Rivers, in order to establish their channels and limits of navigability, which work has been satisfactorily completed, after an absence of the vessel of five months.

The United States steamer *Swatara*, Commander Montgomery Sicard, has done some valuable work of sounding and surveying in the harbor Vera Cruz, Mexico.

The United States steamer *Ashuelot*, Commander G. H. Perkins, determined the positions of the Meac-Sima Group and Vincennes Rocks, south of Japan.

I fully concur in the recommendations made by my predecessor in several annual reports, that an extensive survey of the many islands, rocks, and shoals in the Pacific Ocean be entered into by the Navy, in order to lessen the dangers of navigating that ocean. As long as the proposed survey is delayed, we may expect disasters and loss of life and of property manifold beyond the cost of making the survey.

I also renew a recommendation, made last year, that the surveys of the Isthmus of Panama and the Atrato-Napipi routes, made by United States naval officers under the command of Commander E. P. Lull and Lieut. F. Collins, respectively, be published. While the interest in the projected interoceanic ship-canal across the American isthmus is on the increase both in America and Europe, it would seem but proper that the surveys of the different routes be made accessible to all concerned in the project. The United States Navy has accomplished the laborious task of surveying a number of proposed routes, and of the several surveys made those across the Isthmus of Panama and of the Atrato-Napipi line remain as yet unpublished.

SIGNALS.

The report of the Chief Signal Officer of the Navy, to which I beg leave to refer, treats of the various experiments made during the past year with new methods of signaling.

The method of night-signaling by means of colored stars projected from a pistol, invented by Lieut. E. W. Very, U. S. N., has recently been introduced into the service, and most vessels are now fitted with the necessary implements. The said officer has since submitted a new plan of a complete system of night-signaling, which promises increased usefulness, as it can be applied to intercommunication between United States naval vessels by means of the Naval Signal Code, and also between vessels of

different nationalities by the use of the International Signal Code. A system of night-signaling by means of the latter code would supply a long-felt want, and for that reason, and on account of its simplicity, the system proposed by Lieut. E. W. Very demands attention. It will be thoroughly examined.

With the "Evanswood signal lamp," designed by Lieut. Commander R. D. Evans and Lieut. W. M. Wood, U. S. N., colored flash-signals have been made at Fort Whipple, near Washington, which were distinctly understood at a distance of 16.9 miles. Further trials at Newport, R. I., under various circumstances of weather, have proved this lamp a valuable means for night-signaling, either by the Army method or Very's system of two color combinations.

Experiments have also been made on board the United States steamer Hartford, flagship of the South Atlantic station, in signaling by means of flashes produced by an electric-light machine, and although these trials were not quite satisfactory, there is no doubt that electricity will sooner or later be an important element in signaling.

Thus it will be seen that, although there is in time of peace no immediate want of improved signal methods, the bureau is preparing, in an economical manner, for contingencies demanding the readiest and surest methods.

NAVAL OBSERVATORY.

The report of the Superintendent of the Naval Observatory, herewith appended, is entitled to special attention, as it contains the details of highly useful and interesting astronomical work performed during the past year, notably the observations of the transit of Mercury, May 6, 1878, and the solar eclipse, July 29, 1878.

NAUTICAL ALMANAC.

The report of the Superintendent of the Nautical Almanac, besides stating the work performed in the office in the preparation of the American Ephemeris and Nautical Almanac, in advance, treats of the changes inaugurated under the advice of the National Academy of Sciences, to which, in December last, you referred the question as to what changes were required in the Ephemeris to make it more serviceable to those who use it. The improvements in question will commence with the volume for 1882, already in the hands of the printer.

Respectfully submitted.

WM. D. WHITING,
Chief of Bureau.

Hon. R. W. THOMPSON,
Secretary of the Navy.

OFFICE OF THE SUPERINTENDENT OF COMPASSES,
BUREAU OF NAVIGATION,
Washington, October 26, 1878.

SIR: I have the honor to submit the following report for the current year:

NAVY COMPASSES AND COMPASS INSPECTION.

I have nothing but the usual routine duty to report relative to the Navy compass, with the exception of a noteworthy occurrence in connection with the last lot of compasses inspected by me in September.

This was the discovery of an error varying from $0^{\circ}.5$ to $1^{\circ}.5$ in twenty-five of these compasses, arising from magnetism of the compass-bowls. The discovery of this condition was made by Mr. E. S. Ritchie, in the course of his observations for the verification of the card adjustments and the centering of the pivots; and he had applied the only practicable remedy, although at considerable expense to him, by the substitution of new bowls before my arrival for the duty of inspection. Such an accident, though once reported in the experience of the British Admiralty, is probably of rare occurrence. At the least, it appears to have been rarely observed; but without the appliances of a compass observatory, or of equivalent observations, it would probably escape recognition, unless specially sought for, when it might be easily detected by simple tests of the bowls. Some of the defective bowls in this case have been preserved for future examination as to the causes of the magnetism.

COMPASS DEVIATIONS AND THE MAGNETISM OF SHIPS.

Under this head I have nothing special to report, inasmuch as the iron ships of the Navy which are not laid up have been on special service or otherwise on foreign stations during the past year.

MAGNETIC SURVEYS.

In obedience to instructions from the department in special orders of the 11th of March last, I proceeded to England in the following month, to obtain such information as might be available concerning the practical administration of the system of magnetic observations in the British navy, in order that we might profit by their experience in any attempt to establish similar observations (as suggested in the report of the bureau for 1877) in the naval service of the United States. In submitting a brief generalized statement of the results of this inquiry, in addition to the several special reports already made to the bureau, I beg to present it under certain heads, as follows:

1. *Distribution of the service of magnetic surveys in the British navy.*—The administration of magnetic surveying, like that of hydrographic surveying, and other allied objects of the home service, is under the immediate charge of the Hydrographic Office; which, as is well known, holds somewhat the same relations to the general administration of the British Admiralty as the Bureau of Navigation does to the Navy Department of the United States.

For many years past it has been usual to have several ships of the navy fitted with instruments and the necessary appliances for magnetic surveying in different parts of the globe. Sometimes these outfits were associated with outfits for hydrographic surveying; and sometimes they have been placed on board ships detached for special service; the object being to provide the requisite facilities for doing a certain amount of systematic work of this kind in those parts of the globe where it appeared to be most needed. The occasional special expeditions for general discovery and research have usually been provided with the means for conducting magnetic observations in addition to their other duties. In all cases, where magnetic observations have been provided for, they have been regarded as properly comprising the measurements of the several magnetic elements of the earth.

2. *The system of magnetic observations actually conducted.*—It has therefore been the object of the magnetic service of the British navy to obtain the requisite data for the determination of the magnetic variation, the

magnetic dip, and the total magnetic force; the first two elements defining the direction and the third the intensity of the terrestrial magnetic force for each position occupied upon the surface of the earth, and for the date at which the observation is made. For convenience, the observations of these data are comprised in two distinct classes; namely, those made on board ship at sea, and those made on shore at different stations of call, including the primary station at or near the port of outfit. The land stations serving as terminal or base stations for the different tracks upon which the observations are made at convenient intervals for determined positions of the ship, the different series of observations come in to definite relations of position with each other. The observations on shore are expected to furnish absolute determinations of the magnetic elements in the units of weight and measure employed; and being made under circumstances favorable to the use of the requisite instruments, the results are expected to have all the precision which the skill and care of the observer may enable him to attain. At sea, however, the circumstances of the observation not permitting the use of such methods, the determinations are necessarily relative rather than absolute; but the instruments employed and the methods of observation adopted are expected to furnish results on each track of the ship, which, by means of the known instrumental constants and other ascertainable corrections, may be brought into such relations to the absolute determinations at the base stations of the track as to admit of being reduced to absolute determinations with, in general, a satisfactory degree of precision.

On shore, the elements observed are the variation, the dip, and the horizontal force; at sea, the observations are directed to the variation, the dip, and the total force. Of the observations at sea, the results are subject especially to errors of deviation from the magnetism of the ship's iron, the elements of which must be determined in the usual manner, and the corrections therefrom deduced and applied to the magnetic observations on board.

3. *Instruments used in these observations.*—The instruments latterly used by the British navy in magnetic surveys are as follows:

First, for absolute determinations on shore.—For the magnetic variation an azimuth compass of the ordinary (or standard) Admiralty type is generally used; for the magnetic dip, a six-inch dip circle of the Kew pattern; and for the horizontal force, a unifilar magnetometer of the Kew form. In occasional instances a special declinometer, as an appendage to the unifilar magnetometer, is supplied to a ship for more refined measurements of the variation; and, in general, the dip-circle is provided with weights and deflecting magnets for the use of Dr. Lloyd's method for the statical determination of the total force. The tripod support for portable use of the unifilar is alike adapted to the use of the dip-circle, so that no other support is required for field use with either instrument. The ordinary tripod for portable use of the compass is also the support for this instrument in these observations.

Secondly, for relative determinations on board.—For the magnetic variation, the azimuth compass is of course the only instrument that can be used; for the magnetic dip, a Fox's dip-circle is used, and for the total force the last-named instrument is also used, with the provision of weights and deflectors, after the method of Dr. Lloyd for this element. The support of the compass in this case is its usual pillar or standard fixed upon the deck. The Fox's circle is, however, provided with a special table support in a fixed position on deck, having gimballed bearings for universal motion, with a low center of gravity for sufficient

stability, and a hood for the protection of the instrument against the weather.

It is thus seen that, with the exception of the azimuth compass, which is always included in the navigation outfit, the only instruments actually required in the outfit of a ship for magnetic surveys, in providing for both land and sea observations, are three in number; that is to say, one six-inch dip-circle, one Fox's dip-circle, one unifilar magnetometer, with the portable tripod for the common use of all three on the land, and the gimbaled table for the second fixed on the deck of the ship. As to the use of a special declinometer for land observations of the variation, it would seem to depend partly on the character of the survey and partly also on the disposition of the officer charged with the observations. Unless sufficient deliberation and care can be generally had to realize the full advantage in point of precision to be expected from the use of this instrument, experience has shown that it is more judicious to avoid the incumbrance of the additional apparatus, as well as the labor of the greater refinement of observation, and rely wholly on a good azimuth compass for the variation on both land and sea. It is well known that, with the compass in good adjustment, and with intelligence and care in the observation, quite satisfactory results may be obtained in this manner, entirely reliable within certain limits of error, such as in general may be admitted in extensive magnetic surveys of the kind here considered. The instruments here mentioned as used in the British navy are now and have been from the first of English make.

There is little question that the leading position occupied by Great Britain in practical magnetics for many years past (which is pretty generally acknowledged elsewhere), has led to a corresponding superiority in the construction of instruments for the measurement of the terrestrial magnetic elements. The fact would seem to be sufficiently established by the demand for these instruments, as noted in another part of this report.

The somewhat invidious question of who among the well-known English artists may be regarded as the best or most reliable makers of these instruments is one that would probably have received somewhat different answers at different times during the past twenty years; and it is quite possible that the answer would not have been always the same by different persons at the same time. At present, however, I became quite well satisfied, as the result of my inquiries in this direction, that great confidence may be had in the excellence of the dip-circles made by Mr. John Dover, of Charlton, in Kent County, near London, and in the goodness of the unifilar magnetometer made by Messrs. Elliot & Brothers, of London. As to the azimuth compass, we have no occasion to seek this instrument abroad.

4. *Determination of instrumental constants.*—Next in importance to the possession of suitable and well-made instruments for these observations is the accurate determination of certain specific constants of the instruments, which are essential to their reliable use at different places and dates and under different physical circumstances. These can only be conveniently determined at a magnetic observatory, or at the least at a place where the physical surroundings are favorable and suitable instruments available for the requisite magnetic investigations. These important determinations for the magnetic instruments of the British navy, with the exception of the azimuth compasses, are made at the Kew Observatory, which is located upon the grounds of the Old Deer Park in Richmond, near London, and is therefore conveniently accessible for the purpose from the Admiralty offices. The Kew establishment is a physical

observatory, devoted mainly to magnetism and meteorology; and its magnetic department for many years has not only represented the best knowledge of instruments and methods in practical magnetics for Great Britain, but this supremacy appears to be acknowledged elsewhere, at least over the continent of Europe. Indeed, the Kew forms of magnetic instruments, as made by English artists, have been supplied through the Kew Observatory, after being verified and their constants determined at that establishment, to the governments, scientific institutions, and to private magneticians of nearly all the European states.

5. *Preliminary instruction of officers.*—It might be supposed that officers of the Navy who had once been instructed, and had, besides, subsequently gone through a considerable experience in magnetic observations, should be capable and sufficient instructors of others; nevertheless, it would appear that, in the absence of any suitable place and appliances for this kind of instruction, regarded as a naval establishment, officers of the British navy, who have been detailed for the duties of magnetic observers, have frequently been in the practice of visiting the Kew Observatory for their preliminary instruction in those duties. In reality there are certain advantages in having this instruction given at a magnetic observatory, where, with the superior resources of such an establishment, the instruction may be based on the latest and best experience, not only in the detailed procedure of an observation, but in the proper handling and care of instruments; the lessons in the teaching of the latter being of high importance in this kind of work, especially as done by the navy, and nowhere better understood than in an observatory which is constantly striving for the highest excellence in its results.

In connection with the preliminary instruction of the naval observers, it has been usual for the officers charged with these duties to make the primary observations with the instruments intended for their use at the Kew Observatory, regarded as a primary base, before embarking.

6. *The results of naval magnetic surveys.*—The immediate results of the magnetic observations, being recorded as they are made upon conveniently-arranged printed forms, are sent forward from time to time (but as frequently as practicable) to the admiralty, where, after a careful scrutiny in the hydrographic office, they are laid away among its archives for future reductions. These are not usually made until the surveys of any particular ship shall have been completed, the instruments returned, and suitable final observations made at the primary base, which, as before remarked, has usually been the Kew Observatory. With the final reductions of the observations, the part undertaken by the navy in this work is considered to have been completed. After this, the results are left to the general discussions of the magnetician.

I also proceeded to Paris, in accordance with my instructions, and visited the depot of charts and plans (in the department of the marine), having in charge the magnetic work of the French navy. I found, however, nothing of recent additions to their well-known methods of former years to lead me to doubt the present superiority of the English instruments and methods in nautical magnetics, whether for observations on land or on board ship.

In concluding my report of this visit abroad, I beg to express my grateful acknowledgments to Capt. Frederick John Evans, R. N., Hydrographer of the Admiralty, and Mr. G. M. Whipple, Superintendent of the Kew Observatory, for their many courtesies and kind personal attentions, through whom the objects of my visit were greatly facilitated. And I also beg to record my acknowledgments for the courtesies received, on

my visit to the French hydrographic department, from Messrs. Gaussin and Ploix, hydrographic engineers of the French navy, attached to that department.

I am, sir, very respectfully, your obedient servant,

B. F. GREENE,

Professor Mathematics, U. S. N., Superintendent of Compasses.

Commodore WILLIAM D. WHITING, U. S. N.,

Chief of Bureau of Navigation, Navy Department.

HYDROGRAPHIC OFFICE, BUREAU OF NAVIGATION,

September 14, 1878.

SIR: In accordance with the bureau's instructions, I have the honor to submit the estimates of this office for the fiscal year ending June 30, 1880.

During the fiscal year ending June 30, 1878, the following work has been done in the drafting and engraving department:

1.—WORK LEFT UNFINISHED IN THE PREVIOUS FISCAL YEAR.

The engraving of the new edition of the general chart of the North Pacific Ocean in four sheets was finished and numerous new additions made from late surveys.

Of the general chart of the South Pacific Ocean in eight half-sheets, the engraving of the two western half-sheets was finished.

Of the Mediterranean charts in three sheets, the western sheet was finished and corrected from late surveys.

The engraving of the middle sheet was carried on as far as the data at hand permitted.

The eastern sheet was prepared for engraving, and a sketch of the entire Mediterranean engraved on the plate.

The engraving of the English and Irish Channel charts, each in two sheets, as also of four harbor charts, was completed.

2.—NEW WORK COMPLETED DURING THE YEAR.

Fifteen new coast and harbor charts were prepared and engraved. The greater number of these are from the surveys by the United States steamer Narragansett in the Gulf of California, and on the west coast of Mexico.

Fifteen new charts were photolithographed—three of them from data furnished by the United States steamer Gettysburg.

Five new charts were autographed—one of them from an examination by the United States steamer Alert.

On thirty plates more or less extensive additions and corrections were made from new surveys, and on almost all the plates minor corrections, such as changes in lights, buoys, &c.

3.—WORK ENTERED UPON AND STILL IN PROGRESS.

The six remaining half-sheets of the general charts of the South Pacific Ocean were prepared for engraving, and the engraving contracted for outside of the office, except the last sheet.

Charts of the Indian Ocean, in four sheets, and of the North Atlantic

Ocean, in two half-sheets, are under preparation, and the engraving has also been contracted for outside of the office.

Four thousand five hundred and forty-five charts and nine hundred and seventeen books, publications of this office, have been sold to its agents for the demands of commerce, in addition to those furnished to vessels of the Navy and our exchanges with foreign offices.

Hydrographic notices and notices to mariners have, as information has been received, been published and distributed.

Volume I of the Navigation of the Caribbean Sea, Gulf of Mexico, Bahama Banks, and West India and Bermuda Islands; Volume III of the West Coast of Africa; Part II of the English Channel; the report of the telegraphic determination of longitudes in the West Indies and Central America, and Part II, Coasts and Islands of the Mediterranean Sea, have been printed and issued.

In the meteorological department of this office an atlas of meteorological charts, which were compiled with great care and ability by Lieut. T. A. Lyons, U. S. N., has been published and issued. These charts comprise an area of the ocean extending from the equator to 45° north latitude, and from the coast of America to 180° of west longitude. This area is divided into squares of 5° each, which are numbered so that at a glance the navigator can discover the direction, force, and percentage of the winds he may expect, the mean barometric pressure, the mean temperature, and indeed a mass of condensed and useful information in any given square. It is proposed to continue this work until the whole surface of the navigable ocean is completed.

Efforts are being made to interest the merchant marine in these useful compilations, and the ready manner in which those who have been consulted respond induces the hope that they will be successful.

The Gettysburg, Lieutenant-Commander Gorringe, U. S. N., has been employed in collecting material for compiling sailing-directions for the Mediterranean, two volumes of which have been published and issued. During the progress of her work her machinery became disabled, and it was necessarily discontinued; it is to be hoped that she or some other vessel may be able to complete the little which yet remains to be done.

The Guard, Lieut. Commander F. M. Green, U. S. N., is still employed determining longitudes by electric cable. The work which he was directed to accomplish is so nearly completed, that it is not thought that any further appropriation for this purpose will be required.

The Tuscarora, Commander Philip, U. S. N., has been employed on offshore soundings on the coast of Lower California, has made a survey of the Tartar Shoal, and has been engaged in surveying on the coast of Mexico; her work has been necessarily discontinued, but it is hoped it will be resumed during the coming autumn and winter.

The Adams, Commander Frederick Rodgers, U. S. N., discovered the Rodgers Bank and examined the Hotspur Bank off the coast of Brazil.

The importance of the survey of the Pacific Ocean cannot be overestimated in view of the numerous islands, rocks, and shoals now on the charts whose existence and positions are doubtful.

An exhaustive work of this kind in the Pacific Ocean would be of the greatest assistance to navigators, and I cannot too strongly urge that some steps may be taken for its accomplishment.

Respectfully, your obedient servant,

S. R. FRANKLIN, *Captain U. S. N.,*
Hydrographer to the Bureau.

Commodore WILLIAM D. WHITING,
Chief of Bureau of Navigation.

NAVY DEPARTMENT,
BUREAU OF NAVIGATION, SIGNAL OFFICE,
Washington, October 28, 1878.

SIR: I have the honor to submit the following report of the operations of this office during the past year:

Experiments have been carried on with the Very night signal, and it has been found that the composition of the stars and the present mode of manufacturing them answers every purpose, and that they improve with age. In the bureau's circular of October 10, 1877, adopting this system for use in the Navy, officers were invited to forward plans either for the improvement of the signal or method of applying it, objections having been made to the chronosemic feature of the system as now used. Plans of improvement have been submitted by Lieuts. E. W. Very, W. H. Turner, and John H. Moore, which have only been partially experimented with, owing to the smallness of the appropriation for signals.

The use of the Very night signal having been limited to the tactical and general signal books, Lieut. W. M. Wood, U. S. N., has invented an ingenious flash lamp for communicating by the Telegraphic Dictionary and Geographical List, or by the General Service Code by means of magnesium mixed with either strontia or baryta, which gives a red or a green flash.

Most satisfactory experiments have been made with this lamp by the Army Signal Office and by a board of officers aboard the United States steamer *Saratoga*, confirming the favorable results obtained, from limited experiments, by this office. Signals have been sent and read with the naked eye, without difficulty, at a distance of 16.9 miles during a severe rain-storm with high wind. It has also been used in a heavy fog, at short distances, with very good results.

I would respectfully recommend that a few of these lamps be issued to the service.

During the year careful supervision has been exercised over the signal department of the various vessels in the service, and I am gratified to be able to state that, judging from the quarterly reports of signals received at this office, we have not a vessel in commission aboard of which there is not a number of trained signalmen.

I am, sir, very respectfully, your obedient servant,

J. C. BEAUMONT,

Commodore, and Chief Signal-Officer, U. S. N.

Commodore WM. D. WHITING, U. S. N.,

Chief of Bureau of Navigation.

UNITED STATES NAVAL OBSERVATORY,
Washington, October 29, 1878.

SIR: In compliance with the order of the Bureau of the 23d instant, I have the honor to submit a report of the operations of the Naval Observatory during the past year.

THE 26-INCH EQUATORIAL.

This instrument has been in charge of Prof. Asaph Hall, with Prof. Edward S. Holden as assistant. Mr. George Anderson is employed as an assistant in the dome.

The instrument is constantly employed in observing satellites, double stars, nebulae, and a few comets.

As the lenses showed some particles of matter collected on their inner surfaces, they were taken apart and cleaned by Mr. A. G. Clark, on October 3, 1878. The instrument is now in good working order.

The transit of Mercury, May 6, 1878, and the solar eclipse of July 29, 1878, attracted many foreign astronomers to this country, and some of them having seen our large equatorial, it is worth while to note their criticisms of this instrument. While all speak highly of its optical performance, many of these astronomers, especially the English, think the mounting too light for so heavy an instrument. There is, no doubt, a degree of truth in this criticism, and the instrument appears subject to tremors in right ascension which a heavier mounting might remedy. And yet it is remarkable that during the five years that this instrument has been mounted, observations show that the position of the pole of the instrument has changed only a fraction of a minute of arc.

The following table gives the exact data:

Position of the pole of the instrument.

Date.	η	ξ	Observer.
December 18, 1873	-2.5*	-1.10*	N. & Hn.
December 13, 1876	+0.28	-1.60	H. & Hn.
January 9, 1877	+0.27	-1.61	H. & Hn.
January 3, 1878	+0.47	-1.34	H. & Hn.

* After this determination and before the succeeding one the telescope was partially dismantled.

The driving-clock is now in good order, and performs well.

The dome, probably on account of the decay of some of the lower timbers, has got out of round and is moved with difficulty. The moving of the dome had become so difficult, that some repairs were made during the absence of the observers on the solar-eclipse expedition. These repairs have made the moving easier, but the turning of this large and heavy dome may become a serious difficulty after a few years. It will cause an annual expense to keep this dome in working order.

The work done during the past year by the astronomers on this instrument is as follows:

Professor Hall observed the satellites of Saturn until January 5, 1878, when the position of the planet had become so near the sun that observations were given up. These observations are mostly those of Japetus, Titan, and Hyperion, the faintest of these satellites. The inner satellites were observed only a few times, since they are now regularly observed at several observatories. The appearance of the ring of Saturn was carefully noted during the whole opposition, and it was followed until February 11, 1878. The disappearance of the ring occurred February 6. The angle of position of the major axis of the ring was observed on thirty-six nights by Professor Hall and on twenty nights by Professor Holden. Although at the time of the disappearance of the ring the planet was too near the sun for good observations, yet the whole of these observations indicate that Bessel's elements of the ring are very nearly correct.

The planet Venus was observed by Professors Hall and Holden from October, 1877, until March, 1878. Several drawings of the planet were made by Professor Holden. No spot was found on the planet that could be observed for determining its time of rotation. The appearance of the disk of the planet, its shading towards the terminator, and the

irregularity of the edge of the terminator was the same as has been observed before. No satellite of this planet was seen.

The satellites of Mars were observed by Professor Hall until October 31, 1877. The calculation of the orbits of these satellites from the observations made at Washington, and the reduction and comparison of all the observations made in 1877, were undertaken by Professor Hall in November, 1877, and the work was finished in May, 1878. A report on this subject was published in September, 1878.

The satellites of Uranus and Neptune were observed by Professor Holden, who also made some observations of the inner satellites of Saturn and of the satellites of Mars.

Observations of the double stars selected by Mr. Otto Struve, director of the Imperial Observatory at Pulkowa, for determining the personal errors of various astronomers, have been made by Professor Hall. This list contains thirty stars, and on an average each star has been observed six nights. These observations may be sufficient for the purpose intended, but a few more observations of the closer pairs seem necessary in order to determine the errors in the angles of position which depend on the hour angle at which the observation is made. To complete this work Professor Hall has observed the six stars in the trapezium of Orion, the different combinations of the angles and distances of these stars being measured first with bright wires in a dark field, and again with dark wires in a bright field. Each angle and distance has been measured six times by each method. Professor Holden has made a discussion and an adjustment of these measurements by the method of least squares.

Some of the more interesting and difficult of the binary stars have been observed by Professor Hall; and a good series of observations of the companion of Sirius has been made by both Professors Hall and Holden. The observations on this companion should be continued, and it is hoped they will contribute towards deciding the interesting question whether the Clark companion really produces the variable proper motion of Sirius.

Professor Holden has observed the nebula of Orion on twenty-eight nights. He has made a determination of the relative brightness of the different parts of this interesting nebula, and for this purpose has used a photometer devised by Dr. Hastings, of the Johns Hopkins University. These photometric determinations show that this instrument is capable of giving excellent results.

Besides his work on this nebula, Professor Holden has observed six other of the more interesting nebulae, and has also devoted some time to the observations of the stars connected with these nebulae.

Early in July, Temple's periodical comet was looked for on several nights by Professor Holden, and on one night by Professor Hall. Unfortunately, the errors of the ephemeris were much greater than they were supposed to be, and the comet was not found.

A very careful and exact determination of the value of one revolution of the micrometer-screw has been made by Professor Holden. During the past year this value has been determined by observing the difference of declination of two known stars by means of intermediate stars.

The result shows that our adopted value is essentially correct. This value is: One revolution = $9''.948$.

Besides making the regular observations on this instrument, the professors attached to it have taken part in special observations.

THE TRANSIT CIRCLE.

This instrument, under the direction of Prof. J. R. Eastman, assisted by Assistant Astronomer Edgar Frisby (appointed professor June 11,

1878), Assistant Astronomers A. N. Skinner and H. M. Paul, and Mr. H. S. Pritchett (appointed assistant astronomer September 18, 1878), has been employed in observations of—

1. Stars of the American ephemeris for clock and instrumental corrections.

2. Sun, moon, major and minor planets.

3. Stars whose occultations were observed in connection with observations of the transit of Venus in 1874.

4. Standard stars for a catalogue of zone observations.

5. Stars of the British Association Catalogue between $120^{\circ} 0'$ and $131^{\circ} 10' N. P. D.$

6. Stars employed in observations of comets with the 26-inch and 9.6-inch equatorials.

7. Stars used by Mr. David Gill, of the Royal Astronomical Society of London, in his work of determining the solar parallax from observations of Mars with the heliometer.

The number of observations made with the transit circle during the year is 3,450.

The sun was observed 61 times; the moon 60 times; and there were made 110 observations of the major planets and 149 of the minor planets.

The readings for determining the errors of the divisions on the limb of circle B of the transit circle have been continued the past year, and the data for determining the errors of the single degree divisions were completed during the present month. The computations will be made as soon as practicable.

The annual volume for 1875 has been greatly delayed by lack of funds for printing. The transit-circle work for 1876 is nearly ready for the press. The transit-circle work for 1877 is more than half finished, and the reduction of the observations of 1878 has been commenced.

THE 9.6-INCH EQUATORIAL.

This instrument is under the charge of Professor Eastman, who has the same assistants as on the work with the transit circle. It has been employed in the observation of occultations, and in determining the approximate corrections to the ephemerides of such small planets as are not readily found with the transit circle.

The meteorological department is under the charge of Professor Eastman, and the usual observations have been made at intervals of three hours, beginning at midnight, throughout the year. The observations and the records are made by the watchmen, Messrs. Hays, Horigan, and Cahill.

The control of the system of wires within the observatory connecting the various clocks, chronographs, &c., and of the connections with the wires of the Western Union Telegraph Company, is, as heretofore, in the hands of the officer in charge of the transit circle, while the immediate charge of all the batteries, wires, and their connections, is confided to Mr. W. F. Gardner, the instrument-maker. The connections within the buildings remain nearly the same as during the past year.

Beyond the observatory, this department is responsible for the control, by means of the motor clock, of several clocks in the State, War, Navy, and Treasury Departments; for furnishing accurate time-signals to the Western Union Telegraph Company, and for dropping the time-ball on the Western Union Telegraph office in New York.

A thorough change in the method of controlling these clocks is required, and a proper and creditable distribution of time-signals will

require the use of another clock, and a change in the present method of sending the signals. These changes will cost about \$500, which sum is asked for in the estimates.

TRANSIT OF VENUS.

In reducing the transit of Venus photographs, it became evident that the shrinkage of the collodion was of such a character as to be almost a vanishing quantity, and that it would be advantageous to combine the correction for it with the correction for the interval which existed, when the picture was taken, between the reticule and the sensitive surface of the collodion. With this view, Prof. William Harkness has measured upon each of the two hundred and twenty-one photographs, the interval between the impressions of two of the vertical lines of the reticule, and also the interval between the impressions of two of the horizontal lines of the reticule; these intervals being in every case taken as great as possible. The intervals between the lines upon each of the eight reticules themselves, was subsequently measured with such a degree of accuracy that their probable errors did not exceed the twenty-five thousandth part of an inch; and from these data the desired combined corrections were readily computed.

The work of reducing the observations for the chronometrical longitudes of the stations on Kerguelen Island, New Zealand, Chatham Island, and the German station on Auckland Island, is now almost completed. The chronometers employed varied in number, at different times, from twenty-three to thirty-five; and as their errors had to be computed for every day they were in use, from August 6, 1874, to January 30, 1875, the operation proved to be rather tedious. It was executed under the direction of Professor Harkness, assisted at first by Mr. Josef Lyons, and subsequently by Mr. H. S. Pritchett.

TRANSIT OF MERCURY, MAY 6, 1878.

The transit of Mercury was observed by Professor Hall at Washington. Seventy-two photographs of the planet when on the disk of the sun were made at Washington, by Mr. Joseph A. Rogers, with one of the photo-heliographs used in photographing the transit of Venus in December, 1874. A report on this transit, the adjustments of the photo-heliograph, &c., has been made by Professor Hall.

Professor Harkness, with Lieut. G. E. Ide as assistant, was sent to Austin, Texas, to observe this transit. He occupied the old Coast Survey station in the grounds of the Texas land-office, and although the first half of the transit was lost in clouds, he was favored with a clear sky and a steady atmosphere during the latter half, and succeeded in making twenty-five measures of the polar diameter of Mercury, the same number of measures of its equatorial diameter, excellent determinations of the instants of the third and fourth contacts, and a very satisfactory observation of the physical phenomena attending these contacts. The instrument employed was one of the transit of Venus 5-inch equatorial telescopes, armed with an Airy double-image micrometer. The necessary knowledge of the local time was obtained from observations made with a sextant and mercurial artificial horizon.

The transit was observed by Professor Eastman with the 9.6-inch equatorial at the observatory; and by Assistant Astronomers Frisby and Skinner, with smaller equatorials.

Professor Eastman observed the second, third, and fourth contacts,

made several series of measures of the diameter of Mercury, and made a careful study of the physical phenomena at the time of contacts. Messrs. Frisby and Skinner observed contacts.

Professor Holden, in connection with Dr. Draper, at Hastings-on-the-Hudson, observed the third and fourth contacts, and secured 19 good photographs.

Assistant Astronomer H. M. Paul observed the transit at Hanover, N. H.

Prof. James C. Watson, director of the observatory at Ann Arbor, Mich., and Prof. E. C. Pickering, director of Harvard College Observatory, Cambridge, Mass., kindly agreed to photograph the transit if suitable instruments were furnished them; and, accordingly, two of the horizontal photo-heliographs which had been used for the transit of Venus, and six dozen sensitive dry plates, were sent to each of them. Professor Watson exposed all his plates, but owing to bad weather Professor Pickering exposed successfully only twenty-six of his. As soon after the transit as possible, the plates were returned to the Naval Observatory and there developed by Mr. Joseph A. Rogers, who had originally prepared them, the resulting negatives being quite satisfactory. The measurement of these photographs, and their reduction and discussion, have been assigned to Professor Harkness.

The compilation and discussion of the telescopic observations of the transit of Mercury, made in various parts of the country and forwarded to this observatory, is under the charge of Professor Eastman, assisted by Mr. Paul, and will soon be ready for publication.

TOTAL SOLAR ECLIPSE OF JULY 29, 1878.

As this was the last solar eclipse which would be visible under favorable conditions in the United States during the present century, it was deemed very important to have it thoroughly observed; and it was thought that nothing would contribute more to this end than the diffusion of accurate knowledge concerning the objects and methods of observation. With this view, Professor Harkness was directed to draw up detailed instructions to observers, which were subsequently published in the form of a quarto pamphlet of thirty pages, and widely distributed among those who seemed likely to take an interest in the matter.

The investigations made while drawing up these instructions led Professor Harkness to conclude that, in order to obtain thoroughly satisfactory photographs of the corona, it would be necessary to use far more powerful apparatus than had been employed heretofore, and he proposed the construction of two equatorial cameras of six inches aperture and thirty-six inches focus. After due consideration this plan was adopted, the objectives being furnished by Dallmeyer, of London, the camera tubes with their finders by Stackpole & Brother, of New York, and the plate-holders, both wet and dry, by the American Optical Company, of New York.

As there was neither time nor money for the construction of equatorial stands and clock-work, two of the transit of Venus 5-inch telescopes were removed from their equatorial mountings, and the cameras were substituted in their places. In this way two very serviceable instruments were obtained, which were subsequently used by the parties of Professors Hall and Harkness. At first it was intended to employ wet collodion plates, but against this plan almost insuperable difficulties opposed themselves, and it was finally decided to adopt dry plates, if suitable ones could be had. At this juncture Mr. Joseph A. Rogers,

formerly connected with this observatory, kindly offered to give us some dry plates of his own manufacture. A few experiments showed that they were perfectly reliable, and quite as sensitive as wet plates; and the results subsequently obtained with them upon the corona prove that there is every reason to be thankful that we accepted his generous offer.

As the liberal appropriation made by Congress enabled the observatory to fit out quite a number of parties, the co-operation of all the best-known astronomers in the country was solicited, and they responded heartily. While the observatory was able to assist them, both pecuniarily and by the loan of instruments, it should be understood that they were left entirely free to plan their own observations, thus securing a wide range of investigation. The final arrangement of the parties and the work accomplished by each were, briefly, as follows:

The party under charge of Professor Hall was stationed at La Junta, Colo. The principal results of the work of this party were—

1. Professor Hall made an unsuccessful search for Vulcan with a 5-inch Clark equatorial, magnifying power 150 diameters. The space south of and following the sun was swept over, keeping near the ecliptic, and sweeping about 10° east of the sun. He determined the local time and latitude and longitude of the observing station, assisted by Mr. O. B. Wheeler.

2. Mr. Wheeler made an unsuccessful search for Vulcan with a 5-inch Clark telescope, magnifying 150 diameters, and mounted as an alt-azimuth. The space swept over was below and preceding the sun.

3. Mr. J. A. Rogers made five photographs of the corona. The exposures were 3, 5, 10, 60, and 20 seconds. The camera was mounted equatorially. The image of the moon was .36 of an inch in diameter. As the exposures were increased, more and more of the corona was shown, and the longest exposure gave a corona twenty minutes of arc in extent each side of the sun. These photographs show a great amount of detail, and in connection with those of other parties will probably give more information in regard to the minute structure and extent of the corona than has yet been obtained from photographs.

4. Mr. W. F. Gardner assisted in mounting and adjusting the instrument, and during totality aided Mr. Rogers in making the exposures.

5. Prof. A. W. Wright, of Yale College, made a determination of the plane of polarization of the coronal light, the percentage of polarized light present, and also took two polariscopic photographs.

6. Dr. T. E. Thorpe, of England, determined the magnetic constants for La Junta, and examined the question as to whether there was any change observable in the magnetic instruments during totality. The question was decided in the negative. Photographic experiments were also made by Dr. Thorpe.

The party under the direction of Professor Harkness was stationed at Creston, Wyo., and the work done by it may be summarized as follows:

Professor Harkness, assisted by Lieut. E. W. Sturdy, U. S. N., searched the violet and ultra-violet portions of the coronal spectrum for bright lines, but found none.

Mr. Alvan G. Clark, of Cambridge, Mass., and Assistant Astronomer A. N. Skinner managed the equatorial camera and obtained six photographs of the corona, which are thought to be at least as extensive and rich in detail as any ever taken. The exposures were respectively 3, 15, 30, 60, 8, and 5 seconds. The pictures show the moon three hundred and sixty-two thousandths of an inch in diameter, and for convenience of comparison with the work of other observers it is extremely desirable to enlarge them to the adopted standard size in which the moon is $1\frac{1}{2}$

inches in diameter. With the kind assistance of Mr. L. E. Walker, photographer of the Treasury Department, Mr. J. A. Rogers and Professor Harkness have tried to do this photographically, but thus far the results have not been satisfactory. It seems likely that it will be necessary to resort to drawing, and in that case it may be best to make but one picture from the photographs obtained by the parties of Professors Hall, Harkness, and Holden. In this way, it is thought an extremely accurate representation of the corona will be obtained.

Prof. Otis H. Robinson, of Rochester University, New York, used the polariscopic camera, and obtained four photographs which distinctly show the polarization of the corona. They are now in the hands of Prof. A. W. Wright, who is making a special study of that subject.

In addition to the observations above, the times of the first, second, and fourth contacts were noted by several members of the party. No one was at leisure to note the time of third contact.

The party under direction of Professor Eastman consisted of himself and Prof. Lewis Boss, director of the Dudley Observatory, Albany, N. Y.; Prof. C. W. Pritchett, director of the Morrison Observatory, Glasgow, Mo.; Mr. H. M. Paul, assistant astronomer Naval Observatory; and Mr. H. S. Pritchett, assistant at the Morrison Observatory.

The observing station was in the town of West Las Animas, Colo.

Professor Eastman observed contacts, and, with a single-prism spectroscope attached to a 5-inch equatorial, traced the limit of the substance in the corona which gives the bright line "1474," in the green portion of the spectrum on the north, east, south, and west limbs of the sun. The existence of this line was demonstrated to a distance from the sun's limb equal to about four-tenths of the solar diameter, and the limit was about the same in the four different directions.

Professor Boss determined the latitude and longitude of the station, observed contacts, and, during totality, devoted himself to the study of the details of the structure of the corona.

Professor Pritchett observed contacts, and, during totality, devoted a portion of his time to a search for Vulcan, and the remainder to a study of the solar prominences and one or two portions of the corona.

Assistant Paul observed contacts, and, during totality, sketched the outline of the corona projected on a finely ground glass plate in the focus of a telescope of 48.5 inches focus, with an objective of 3.5 inches.

Mr. H. S. Pritchett assisted Professor Boss in the observations to determine latitude and longitude, observed contacts, and, during totality, pointed the telescope which carried Professor Eastman's spectroscope.

The party under Professor Holden was stationed at Central City, Colo. The work done was as follows:

Professor Holden made an unsuccessful search for Vulcan, and a sketch of the corona.

Dr. C. S. Hastings, professor of physics in Johns Hopkins University, Baltimore, made six independent determinations of the plane of polarization of the coronal light.

Prof. E. W. Bass, United States Military Academy, West Point, made a minute examination of one-half of the corona, and observed the four contacts.

Lieut. S. W. Very, U. S. N., determined the latitude and longitude of Central City, and assisted Dr. Hastings during totality by pointing his telescope.

Mr. J. E. Keeler, assistant in physics in Johns Hopkins University, made a crayon drawing of the corona.

Mr. C. H. Rockwell, of Tarrytown, N. Y., made a sketch of the corona, and noted time for Professor Bass.

Mr. Peers, of Central City, took a photograph of the corona. This photograph is noteworthy, as it gives more of the outer corona than any other, and is a valuable supplement to the photographs of Professors Hall and Harkness. (The outer corona is shown over 60' on each side of the sun.)

The reports of this party are all prepared, except that of Dr. Hastings, which is nearly completed.

Sketches of the total phase were made by Mr. E. M. Rogers at Central City, Miss Kate Wolcott at Black Hawk, and Miss Risley-Seward at Colorado Springs, and handed to Professor Holden for transmission to the Observatory.

Besides the parties under the immediate direction of the professors at the Observatory, others were dispatched to various points, as before stated. The expenses of these parties were defrayed in whole or in part from the appropriation "for observing the total solar eclipse of July 29, 1878." The final reports of some of these parties have not yet been received, but the following preliminary sketch of their operations is presented:

1. The party under Professor Newcomb, U. S. N., superintendent of the Nautical Almanac, was composed of the chief of party and Commander W. T. Sampson, U. S. N., Lieut. C. G. Bowman, U. S. N., and Mr. John Meier, of the Nautical Almanac Office, and was stationed at Separation, Wyoming.

This party observed contacts, and exposed a large number of (dry) photographic plates in one of the horizontal photo-heliographs belonging to the Naval Observatory. These plates were carefully prepared by Mr. J. A. Rogers, and were exactly similar to those prepared by him which gave such excellent results in the photographs of Mercury in transit at Washington, Cambridge, and Ann Arbor.

When Professor Newcomb's plates came to be developed, however, hardly a trace of an image could be made out upon them; and it would have been presumable that the exposures had not been properly made, if it were not for the fact that Professor Newcomb personally superintended the operation of exposing these plates, and that he is confident that the full beam of sunlight from the heliostat mirror fell on the sensitive plate. As the case now stands, the failure of these plates is inexplicable.

Professor Newcomb conducted a search for Vulcan, which was unsuccessful.

A party consisting of Prof. S. P. Langley, director of the Allegheny Observatory, Penn., and Prof. J. W. Langley, of Michigan University, Ann Arbor, occupied the summit of Pike's Peak. They were engaged in photometric determinations of the light of the corona, etc., and secured valuable drawings; Prof. S. P. Langley was able to trace the corona for several degrees on each side of the sun, and to see it after the reappearance of the sun.

Mr. G. W. Hill, of the Nautical Almanac Office, made a drawing of the corona at Denver, Colo.

Prof. O. Stone, director of the Cincinnati Observatory, and Mr. W. Upton, of Harvard College Observatory, observed the eclipse a few miles east of Denver. Contact and other observations were secured.

Prof. James C. Watson observed at Separation, Wyo., and he has given to the Observatory an account of his discovery of one or perhaps

two intra-Mercurial planets. His original letters have been already published by the Observatory,

Messrs. L. and G. H. Trouvelot, of Cambridge, Mass., observed at Creston, and a fine pastel drawing of the corona has been received from them.

Mr. D. P. Todd, of the Nautical Almanac Office, observed at Dallas, Texas, and in spite of cloudy weather, observed contacts. He also secured a number of observations of the duration of totality from volunteer observers stationed near the limits of total eclipse.

PUBLICATIONS OF THE OBSERVATORY AND THEIR DISTRIBUTION.

The distribution of the volume of the astronomical and meteorological observations made during the year 1874, has been continued in answer to calls from observatories and other scientific institutions, and from individuals directly interested in astronomical work. The distribution of the annual volume is properly limited to these. The foreign distribution has been made as usual, chiefly through the kind offices of the Smithsonian Institution. The next annual volume—that containing the observations for the year 1875—is daily expected from the government press. The observatory has distributed the larger part of each edition of the separate treatises issued during the year; viz, *Researches on the Motion of the Moon, Part I*, by Professor Newcomb; *Instructions for Observing the Transit of Mercury of May 5-6, 1878*, communicated to the Superintendent by Professor Newcomb, U. S. N., superintendent of the Nautical Almanac, for the use of observers intending to co-operate with the Observatory; *Instructions for Observing the Solar Eclipse of July 29, 1878*, by Professor Harkness; *Observations and Orbits of the Satellites of Mars*, by Professor Hall; and the *Meteorological Observations made at the Observatory during 1875*, by Professor Eastman.

The exchanges received from a number of the chief scientific institutions of our own country and from abroad continue to enhance the value of the library, which is also adding to its astronomical and mathematical volumes standard works purchased under the appropriation made for this purpose last year. A small appropriation for further purchases is submitted in the estimates.

The Narrative of the Residence of the late C. F. Hall among the Esquimaux at Hudson's Bay during the years from 1864 to 1869, inclusive, ordered by the Senate to be prepared from the manuscripts purchased by Congress, and under the charge of Prof. J. E. Nourse, is advancing towards completion. Of the Narrative of the Polaris Expedition, prepared by the late Admiral Davis, no volumes remain at the Observatory. No copies of the 2d or of the 3d edition of this work have been at its disposal.

CHRONOMETERS.

There are at present in the chronometer-room one hundred and thirty-two mean time chronometers, of which thirty-seven are ready for issue, eighty-two need repairs, and thirteen were taken from the Florida. There are also six sidereal chronometers, four of which are break-circuits, and eleven condemned ones, which have been cleaned and put in good order, to be issued to vessels of war as "hacks." There are also ninety-eight condemned chronometers stored away.

During the year eighty-one chronometers have been received at the Observatory and fifty have been issued; twenty-five to vessels of the Navy, of which ten were "hacks."

Twelve chronometers have been condemned during the year on account of age, by order of the Bureau of Navigation.

In issuing chronometers to vessels, the rule is, to select three of different makers, but of regular rates, and one of the "hacks."

In order to determine the effect on a two-day chronometer of allowing it to run forty-eight hours, twelve chronometers were selected and put in a case by themselves and wound only every other day for a period of five rate days (fifty days). They were then wound every day for the same length of time and again allowed to run fifty days, being wound every other day. Their rates for these different periods are given below.

In originally selecting these chronometers, six were taken with a small rate, three with a medium rate, and three with a large rate. The rates of six good chronometers which were wound regularly every day are also given for the same periods of time, to be taken as a standard of comparison.

Chronometers.		December 17 to January 16, 30 days before trial.	January 16 to March 7, wound every other day.	March 7 to April 26, wound daily.	April 26 to June 15, wound every other day.	June 15 to July 15, 30 days after trial.
Name.	Nos.					
1 Negus	1326	+0.222	+0.530	+0.684	+0.599	To June 25. +0.268
2 Crisp	2101	-1.478	-1.840	-1.736	-1.841	-1.681
3 Negus	700	+0.038	+0.960	+1.154	+0.719	+0.002
4 Negus	740	+0.938	+1.080	+1.264	+0.789	To July 5. +0.224
5 Negus	1340	+0.005	+0.360	+0.634	+0.560	To June 25. +0.458
6 Birch	1217	-1.495	-1.180	-0.426	+0.269	-0.731
7 Frodsham	3276	+0.905	+1.530	+0.804	+0.649	+0.669
8 Eggert	552	-1.878	-1.560	-1.196	-1.511	-2.048
9 Negus	1202	+1.522	+2.530	+2.704	+2.139	+0.969
10 Barrand	2504	+3.005	+4.870	+4.394	+4.479	+4.119
11 Negus	734	-3.795	-2.870	-3.306	-3.001	-3.065
12 Negus	775	+2.955	+3.020	+3.614	+3.849	+3.402
Average		+ .120	+ .620	+ .716	+ .644	+ .211

These chronometers were wound daily.

Chronometers.		Nos.	30 days.	50 days.	50 days.	50 days.	30 days.
			<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>
1	Chadwick	386	- 1.645	- 1.340	- 0.576	- 0.091	- 0.451
2	Negus	916	- 1.395	- 1.320	- 0.708	- 0.561	*- 0.776
3	Frodsham	2,229	- 0.978	- 1.000	- 0.996	- 0.921	- 1.615
4	Litherland	833	- 0.262	+ 0.040	+ 0.434	+ 0.549	- 0.395
5	Davies Co	17,774	+ 0.955	+ 1.240	+ 0.704	- 0.441	- 1.665
6	Negus	1,126	+ 0.855	+ 0.780	+ 0.644	+ 0.458	- 0.131
Average.....		.....	- .412	- .267	- .083	- .168	- .839

* To July 5.

In the first part of this table the first and last columns of rates show the rates of twelve chronometers for thirty days when wound daily; the second and fourth, their rates for fifty days when wound every other day; and the third, their rates for fifty days when wound every day.

The second part of the table shows the rates of six chronometers when wound daily for the same periods.

In this table of rates no account has been taken of the change of temperature, but it has been presumed that all the chronometers would be affected alike, as they were all in the same room, and affected by the same temperature (this is not strictly true, however), and that any variations in the rates of those which were wound only every forty-eight hours not found in the rates of those which were wound every twenty-four hours might be ascribed to that cause. But, as the rates of all these chronometers vary in about the same manner, and as the average rates of the two sets vary alike also, it is fair to presume that a chronometer can be allowed to run forty-eight hours and be almost as reliable as if wound daily.

Arrangements for dropping a time-ball in New York City at exact New York noon were perfected, and the ball dropped from the chronometer-room for the first time on September 10, 1877. It has been dropped daily (except Sundays and holidays) since that time with but eight exceptions, which are as follows: Twice, owing to trouble with the wire between Washington and New York; three times, owing to derangement of ball apparatus at New York; once, owing to neglect in the chronometer-room; once, to neglect at the Washington telegraph-office; and once, to neglect at New York.

At Washington noon time-signals are transmitted to all parts of the United States, and a time-ball is dropped from the flag-staff on the dome.

Very respectfully, your obedient servant,

JOHN RODGERS,

Rear-Admiral, Superintendent.

Commodore WILLIAM D. WHITING, U. S. N.,

Chief of Bureau of Navigation, Navy Department.

NAUTICAL ALMANAC OFFICE,

Washington, D. C., October 26, 1878.

SIR: In compliance with your order of the 21st instant, I have the honor to submit the following report of the operations of this office during the past year:

The Navigators' Almanac for the year 1881 was issued in February last, and the large Ephemeris for the same year in September last. The printing of the Ephemeris and Almanac for 1882 has commenced, and 75 pages are now in type. The computations of the Ephemeris for 1882 are nearly all completed, and those for 1883 are in progress.

During the year ending September 30, 1878, 473 copies of the American Ephemeris and Nautical Almanac were sold or sent to agents for sale, and 794 copies were distributed for the public service and to scientific institutions. Of the Navigators' Almanac 3,766 copies were sent to agents for sale.

CHANGES IN THE ALMANAC.

In December, 1877, on recommendation of the office, the honorable Secretary of the Navy referred to the National Academy of Sciences the question, what changes were required in the Ephemeris to make it more serviceable to those who use it. A committee of the Academy recommended several extensive changes, involving the omission of matter of which some was not regarded as necessary and some could be readily derived from data in other parts of the work. The space thus left was filled by the addition of matter considered useful. The chiefs of several government surveys desired a large increase in the list of fixed stars

contained in the Ephemeris, in order to facilitate the determination of geographical positions. The changes next in importance consisted in the presentation of more complete data, maps, and diagrams for the eclipses of the sun and the satellites of the planets. The changes were so adjusted that the size and cost of the work should not be materially altered. They commence with the Ephemeris for 1882, now in press.

IMPROVEMENT OF THE TABLES.

With the aid of the additional force employed in the office, several works have been commenced having in view the much-needed improvement of the astronomical tables and data, from which the Ephemeris is constructed.

STAR CATALOGUE.

It is intended to collect all the star places now or hereafter to be used in the preparation of the Ephemeris into a single catalogue and to give the most accurate positions which can be obtained from published observations. The total number of stars in the list may be about 1,300. This work has been commenced by Master Chauncey Thomas, U. S. N., and Mr. J. O. Wiesner, and it is hoped to put two or three other officers or computers upon it so as to complete it next year.

THEORY OF JUPITER AND SATURN.

The very difficult and laborious problem of the perturbations of Jupiter and Saturn has been taken up by Mr. G. W. Hill, whose work on this subject will probably be completed in the course of eighteen months, or sooner if the office should be able to supply him an assistant.

TABLES OF THE MOON.

The comparison of Hansen's tables of the Moon, with observations from 1750 to the present time, in continuation of the researches on the motion of the moon recently published by the Naval Observatory, has been commenced by Mr. John Meier. The work of several computers will, however, be required to bring it to completion.

The prospective scientific value of the above works and of others on the mass of Jupiter and the motions of Jupiter's satellites, preparations to commence which have begun, renders it desirable to carry them to completion as rapidly as is consistent with that accuracy which is their first requirement. The system which the Department has inaugurated of rendering the excellent mathematical training given to young officers at the Naval Academy available in the prosecution of the highest department of astronomical research, by employing them in the computations above described, bids fair to prove entirely successful.

It is proper to state in this connection that the office is under obligations to two distinguished foreign astronomers for the communication of unpublished data relative to this work. These are Dr. Arthur Auwers, of Berlin, who has communicated the results of the re-reduction of Bradley's observations of the stars, made at Greenwich between 1750 and 1762, and Dr. Theodore von Oppolzer, of Vienna.

PRECAUTIONS IN PRINTING.

Typographical and other errors in the Ephemeris are frequently communicated to the office, and have sometimes been unfavorably commented

on in the public prints. As they tend to breed distrust of the care and accuracy with which the work is prepared, it has been deemed necessary to change the system of proof-reading by having this work done entirely in the office under the supervision of a single responsible assistant, Mr. D. P. Todd, who is charged with the final revision of all the office printing.

Very respectfully, your obedient servant,

SIMON NEWCOMB,

Professor, U. S. N.,

Superintendent Nautical Almanac.

Commodore W. D. WHITING, U. S. N.,

Chief Bureau Navigation, Navy Department.

Estimate of appropriations required for the service of the fiscal year ending June 30, 1880, by the Bureau of Navigation.

FOR THE SUPPORT OF THE BUREAU OF NAVIGATION.

For salary of chief clerk (Revised Statutes, page 69, section 416, and act of June 19, 1878)	\$1,800
For salary of one clerk of third class (Revised Statutes, page 26, section 167, and act of June 19, 1878)	1,600
For salary of one clerk of second class (act of June 19, 1878)	1,400
For salary of messenger (act of June 19, 1878)	720
For salary of laborer (act of June 19, 1878)	600
For contingent expenses	400
Total	6,520

A.

I.—FOR NAVIGATION.

For foreign and local pilotage and towage of ships of war	\$45,000
For services and materials for correcting compasses on board ship, and for adjusting and testing compasses on shore	3,000
For nautical and astronomical instruments, nautical books, maps, charts, and sailing directions, and repairs of nautical instruments for ships of war	9,000
For books for libraries of ships of war	2,000
For Navy signals and apparatus, namely, signal-lights, lanterns, rockets, running-lights, drawings, and engravings for signal-books	6,000
For compass-fittings, including binnacles, tripods, and other appendages of ships' compasses	3,000
For logs and other appliances for measuring the ship's way, leads, and other appliances for sounding	3,000
For lanterns and lamps and their appendages for general use on board ship, including those for the cabin, wardroom and steerage; for the holds and spirit-room; for decks and quartermasters' use	5,000
For bunting and other materials for flags, and making and repairing flags of all kinds	4,000
For oil for ships of war, other than that used in the Engineer Department, candles when used as a substitute for oil in binnacles and running-lights; for chimneys and wicks, and soap used in the navigation department	20,000
For stationery for commanders and navigators of vessels of war and for use of courts-martial	1,500
For musical instruments and music for vessels of war	1,000
For steering-signals and indicators, and for speaking-tubes and gongs for signal communication on board vessels of war	2,000
Total	104,500

II.—FOR NAVIGATION CONTINGENT.

For freight and transportation, postage and telegraphing on public business; advertising for proposals; packing-boxes and materials, and all other contingent expenses	\$2,000
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III.—FOR NAVIGATION.—HYDROGRAPHIC WORK.

For drawing, engraving, purchase of chart-paper, printing, and photolithographing charts, correcting old plates, preparing and publishing sailing directions and other hydrographic information	\$40,000
For fuel, lights, and office furniture; care of building and other labor; purchase of books for library; drawing materials and other stationery; postage, freight, and other contingent expenses.....	4,000
For rent and repair of building	2,000
Total.....	<u>46,000</u>

B.

I.—FOR NAVAL OBSERVATORY.

For three assistant astronomers, at \$1,500 each, and one clerk of class three.	\$3,100
For one instrument maker, three watchmen, one messenger, and one porter; keeping grounds in order; repairs of buildings and inclosures; fuel, light, and office furniture; chemicals for batteries; stationery, freight, labor, and all other contingent expenses	12,000
For professional books for library	1,000
For reducing and transcribing astronomical and meteorological observations for publications.....	2,200
Total.....	<u>21,300</u>

C.

I.—FOR NAUTICAL ALMANAC.

For pay of computers and clerks for preparing for publication the American Ephemeris and Nautical Almanac	\$19,000
For rent, fuel, labor, stationery, boxes, expressage, books, and miscellaneous expenses	1,500
For ephemeris of new planets, discovered by American astronomers.....	2,000
Total.....	<u>22,500</u>

RECAPITULATION.

Estimate of appropriations required for the fiscal year ending June 30, 1880, by the Bureau of Navigation, Navy Department.

FOR SUPPORT OF BUREAU.

Salaries and contingent	<u>\$6,580</u>
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FOR THE NAVAL SERVICE.

A. I.—Navigation	\$104,500
II.—Navigation contingent	2,000
III.—Navigation, hydrographic work	46,000
B. I.—Naval Observatory	21,300
C. I.—Nautical Almanac	22,500
Total	<u>196,300</u>

Abstract of offers for supplies received for furnishing articles coming under the cognizance of the Bureau of Navigation.

1,500 gallons lard-oil—bureau's order of November 7, 1877.

*Whittier, Fuller & Co., San Francisco, Cal. per gallon.....	89½ Cents.
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2,000 gallons lard-oil—bureau's order of March 1, 1878.

*James H. Redfield..... per gallon.....	59 3/4 Cents.
Manhattan Oil Company..... per gallon.....	60 1/4
J. H. Walker..... per gallon.....	60 3/4
C. E. Wallis..... per gallon.....	60 3/4

*Accepted.

10,000 gallons lard-oil—bureau's order of June 15, 1878.

	Cents.
*N. K. Fairbanks & Co.....	per gallon 58 $\frac{1}{2}$
Manhattan Oil Company	per gallon 59 $\frac{1}{2}$
James Symington	per gallon 60 $\frac{1}{2}$
E. T. Howe	per gallon 62 $\frac{1}{2}$

No. 6.—BUREAU OF YARDS AND DOCKS.

BUREAU OF YARDS AND DOCKS,
NAVY DEPARTMENT,
Washington, D. C., October 26, 1878.

SIR: In compliance with your order of the 21st instant, I have the honor to submit my annual report for the fiscal year ending June 30, 1878, and estimates for the fiscal year ending June 30, 1880, together with an abstract of offers for furnishing supplies coming under the cognizance of the Bureau of Yards and Docks for the fiscal year ending June 30, 1878.

Very respectfully, your obedient servant,

R. L. LAW,
Chief of Bureau.

Hon. R. W. THOMPSON,
Secretary of the Navy, Navy Department,
Washington, D. C.

BUREAU OF YARDS AND DOCKS,
NAVY DEPARTMENT,
Washington, D. C., October 26, 1878.

SIR: In obedience to your order of the 21st instant, I have the honor to submit the annual report of this bureau, and the expenditures for the fiscal year ending June 30, 1878.

I also submit the estimates for the fiscal year ending June 30, 1880.

The estimates submitted by the bureau are exactly the sums appropriated by the second session of the Forty-fifth Congress. The estimates made by the commandants of the several navy yards and stations are also submitted for your information and consideration.

No appropriation for improvements of navy-yards was made for the fiscal year 1878-79, except the small sum of \$75,000 for continuation of work on the Mare Island dry-dock. This sum, except a small amount reserved for unforeseen accidents, will be expended by the middle of December. This work is of such a nature that delay in finishing it will add greatly to the expense. The breaking in of the coffer-dam, a temporary wooden structure intended only to last a reasonable time for the construction of the dock, would greatly injure the work already done and be attended with immense loss to the government; and should such an accident occur during working hours the loss of human life would probably be very great.

I trust Congress may grant such an appropriation as will permit the work to be carried beyond the hazard of its utter destruction by the accidental giving way of the coffer-dam referred to.

On the 23d instant a gale of wind and rain swept over League Island

*Accepted.

Station, causing extensive damage. The dike that surrounds the island and prevents its overflow at each tide was broken through in 35 places, aggregating a width of 1,396 feet, by the high water, and the whole place not filled in, above any tide yet known, was overflowed to a depth of about seven feet.

The expense of repairing this damage so as to exclude the water will probably be about \$10,000, and then the repairs will be only of a temporary nature; to do it properly and raise the dike around the island to a point beyond the reach of future flood, the estimated cost would be about \$50,000.

This gale also did damage to a number of buildings to a greater or less extent, unroofing some and utterly demolishing a large ship-house.

The small sum appropriated for repairs has been judiciously expended, but with every care and the most frugal use of the appropriation, I find costly store-houses, ship-houses, workshops, and other improvements going to decay, rapidly depreciating in value for the want of means to repair roofs, to paint, to drain; and to do the work of preservation, temporary repairs, make-shifts, are all the work the bureau has been able to accomplish with the means at its command.

The remarks under the heads of the several yards and stations will inform you in detail of their condition.

PORTSMOUTH, N. H.

During the past fiscal year all the means allotted for repairs and preservation have been expended in the most economical and judicious manner for the preservation of the public property under the cognizance of this bureau. Roofs, foundations, and glazing have been repaired, as these objects are of vital importance; painting and more thorough repairs have been deferred for want of funds. Bridges, wharves, and landing-stages have been so far kept in order as to prevent any accidents or damage to persons or property. Hospital building No. 28 has been renovated and improved inside and outside; the grounds have been graded and drains laid to tide-water, to insure a dry cellar in rainy seasons. Improvements have been introduced which have added greatly to the healthfulness of the premises, the comfort of the sick, and conveniences of nurses and attendants. The hospital is now, what it never was before, comfortable in all seasons of the year and in fair repair.

The dry-dock has been repaired so far as the money allotted would permit; the 24 pumps of the dock have been refitted, and in several instances decayed timbers and planks have been removed and the necessary repairs made. The hydraulic and pumping apparatus are all in good order and ready for use when required.

It has not been possible, with the very inadequate allotment under this appropriation, to meet all the calls for repairs; such only as were of the most urgent necessity were attended to, and in numerous other cases which were unavoidably neglected the process of decay and deterioration is rapidly going on.

There has been expended at this yard, under the head of "Repairs and preservation," during the fiscal year ending June 30, 1878—

For materials	\$10,305 52
For labor	3,587 50
Total.....	13,893 02

The amount allotted under the head of "General maintenance" has been expended, under the various enumerated items, as economically as possible, in view of the small amount of the appropriation.

There has been expended during the fiscal year—

For materials	\$8,272 53
For labor	28,048 14
Total	36,320 67

The expenditure under the head of "Civil establishment" is—

Civil establishment	\$4,417 14
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The total expenditures at this yard during the fiscal ending June 30, 1878, are—

For repairs and preservation	\$13,893 02
For general maintenance	36,320 67
For civil establishment	4,417 14
Total expenditures	54,630 83

The estimates submitted by the authorities at this yard, for the fiscal year ending June 30, 1880, are—

For works of improvement	\$127,450 43
For repairs and preservation	49,500 00
For general maintenance	69,725 00
For civil establishment	5,900 00

Making the aggregate of	252,575 43
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BOSTON, MASS.

During the fiscal year ending June 30, 1878, no extensive repairs have been made to any one particular object or building, owing to the small allotment under this appropriation; patching and slight repairs have been in continual progress upon the various and numerous yard buildings, and they are in as good condition as the funds at the disposal of the bureau would permit. The officers' quarters are generally in pretty good repair and are comfortable. The repairs upon roads, walks, drains, sewers, and water and gas pipes have been performed as circumstances required.

All the general repairs throughout the yard are of a miscellaneous character, and have been performed with as much regard to economy as possible.

The amount expended under the head of "Repairs and preservation" during the fiscal year ending June 30, 1878, is—

For materials	\$1,512 84
For labor	20,767 95
Total	22,280 79

The expenditures under "General maintenance" during the fiscal year have been applied to the several objects coming under this head, as shown in the tabular statement No. 3.

The amounts authorized during the past three years have been quite inadequate to meet the legitimate demands upon this fund; they are numerous and of a pressing character.

There has been expended during the fiscal year—

For materials	\$14,500 69
For labor	39,728 44
Total	54,229 13

The expenditure under head of "Civil establishment" is—

Civil establishment	\$4,417 25
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The total expenditure at this yard during the fiscal year ending June 30, 1878, is—

For repairs and preservation.....	\$22,280 79
For general maintenance.....	54,229 13
For civil establishment.....	4,417 25
Total expenditures.....	80,927 17

The estimates submitted by the authorities of the yard for the fiscal year ending June 30, 1880, are—

For works of improvement.....	\$164,247 49
For repairs and preservation.....	146,970 00
For general maintenance.....	99,200 00
For civil establishment.....	8,073 50
Total.....	418,490 99

NEW LONDON, CONN.

At this yard there has been expended during the past fiscal year, under head of "Navy-yard, New London," for materials, \$144.44.

Such repairs as were necessary have been made to the buildings, and the amount expended under head of "Repairs and preservation" is—

For materials.....	\$37 63
For labor.....	271 77
Total.....	309 40

The amount expended under head of "General maintenance" is—

For materials.....	\$253 33
For labor.....	4,708 85
Total.....	4,962 18

The amount expended under "Civil establishment" is—

Civil establishment.....	\$1,014 00
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The total expenditure during the fiscal year ending June 30, 1878, is—

For works of improvement.....	\$144 44
For repairs and preservation.....	309 40
For general maintenance.....	4,962 18
For civil establishment.....	1,014 00
For contingent.....	65 00
Total expenditures.....	6,495 02

The estimates submitted by the authorities of the yard for the fiscal year ending June 30, 1880, are—

For works of improvement.....	\$318,469 10
For repairs and preservation.....	1,825 70
For general maintenance.....	23,915 00
For civil establishment.....	7,977 25
Total estimates.....	352,187 05

NEW YORK, N. Y.

Owing to the very limited appropriations for repairs and preservation for several years past, many very necessary repairs to the numerous buildings at this important yard have been neglected, and now a considerable expenditure is necessary to prevent further deterioration. During the past year the allotment under this head has been expended upon

the objects of first importance, and great economy and good judgment have been exercised in the expenditures; still there are many repairs required, which should be executed promptly or the public interests must suffer.

The amount expended under the head of "Repairs and preservation" is shown in tabular statement No. 2, and is—

For materials	\$3,436 25
For labor	14,094 92
Total	22,531 17

The amount expended under the head of "General maintenance" is shown in detail in tabular statement No. 3, and is—

For materials	\$18,777 87
For labor	72,469 33
Total	91,247 20

The expenditure under head of "Civil establishment" for the fiscal year is—

Civil establishment.....	\$5,723 53
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The total expenditures at this yard during the fiscal year ending June 30, 1878, are—

For repairs and preservation.....	\$22,531 17
For general maintenance	91,247 20
For civil establishment.....	5,723 53
Total expenditures	119,501 90

The estimates submitted by the authorities of the yard for the fiscal year ending June 30, 1880, are—

For works of improvement	\$1,308,133 63
For repairs and preservation.....	115,000 00
For general maintenance	99,150 00
For civil establishment	4,656 25
Total estimates	1,526,939 88

LEAGUE ISLAND, PA.

During the past year the expenditures under head of "Navy-yard, League Island," were made upon the following objects: Saw-mill, guard-house, watch-house, causeway and bridge, dredging and filling in, iron-plating shop, steam-engineering store-house, docking apparatus and mold-loft, blacksmith-shop and foundry, extension of wharf, and grading. These works have been prosecuted with vigor; some of them are completed, and others are well advanced. On these various objects there has been expended during the fiscal year—

For materials	\$38,633 84
For labor	57,195 34
Total	125,829 18

Proper care and attention have been bestowed upon the various buildings, roads, walks, wharves, and other improvements, and such repairs have been applied as their condition required. The amount expended under the head of repairs and preservation is—

For materials	\$3,952 83
For labor	15,369 33
Total	24,322 16

The amount expended under head of "General maintenance" is shown in detail in paper No. 3, and is—

For materials	\$9,050 02
For labor	42,923 15
Total	51,973 17

The money expended under head of "Civil establishment" is—

Civil establishment	\$6,921 25
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The expenditures under head of "Contingent" amount to—

Contingent	\$10,400 00
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The total expenditures at this yard during the fiscal year ending June 30, 1878, are—

For works of improvement	\$125,829 18
For repairs and preservation	24,322 16
For general maintenance	51,973 17
For civil establishment	6,921 25
For contingent	10,400 00
Total expenditures	219,445 76

The estimates submitted by the authorities of the yard for the fiscal year ending June 30, 1880, are as follows:

For works of improvement	\$1,607,000 00
For repairs and preservation	50,000 00
For general maintenance	80,000 00
For civil establishment	7,600 00
Total estimates	1,744,600 00

WASHINGTON, D. C.

The expenditures under the head of "Repairs and preservation" for the fiscal year have been—

For materials	\$6,473 42
For labor	9,857 94
Total	16,331 36

The utmost economy has been observed in the expenditure of the funds under this head; slight repairs, such as were indispensable, have been put upon the numerous buildings and other works, but, in consequence of the very limited amount of the appropriation, many important repairs were necessarily deferred for want of funds, and some of the buildings must suffer by the delay.

The amount expended under the head of "General maintenance" is—

For materials	\$13,389 37
For labor	39,637 96
Total	53,027 33

The expenditure under head of "Civil establishment" is—

Civil establishment	\$4,413 03
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Under the head of "Contingent" there has been expended—

For materials	\$500 48
For labor	257 00
Total	757 48

The total expenditures at this yard during the fiscal year ending June 30, 1878, were—

For repairs and preservation	\$16,331 36
For general maintenance	53,027 33
For civil establishment	4,413 03
For contingent	757 48
Total expenditures	74,529 20

The estimates submitted by the authorities of the yard for the fiscal year ending 30th June, 1880, are—

For improvement of yard	\$12,604 70
For repairs and preservation	162,090 00
For general maintenance	69,110 00
For civil establishment	4,617 25
Total estimates	248,421 95

NORFOLK, VA.

The amount expended at this yard under head of "Repairs and preservation" during the past fiscal year is—

For materials	\$7,135 68
For labor	14,381 66
Total	21,517 34

The amount expended under head of "General maintenance" is—

For materials	\$8,534 84
For labor	41,173 03
Total	49,707 87

The amount expended under head of "Contingent" is—

Contingent	\$184 38
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The amount expended under head of "Civil establishment" is—

Civil establishment	\$5,268 42
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The total expenditures during the fiscal year are—

For repairs and preservation	\$21,517 34
For general maintenance	49,707 87
For civil establishment	5,268 42
For contingent	184 38
Total	76,678 01

The estimates submitted by the authorities of the yard for the fiscal year ending 30th June, 1880, are—

For works of improvement	\$641,926 09
For repairs and preservation	100,478 51
For general maintenance	72,850 79
For civil establishment	7,039 00
Total estimates	822,294 39

PENSACOLA, FLA.

The amount expended for this yard under head of "Navy-yard, Pensacola," during the fiscal year ending 30th June, 1878, it being for the iron floating-dock, now building for this yard, is—

on floating-dock	\$161,788 00
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There has been expended during the year for objects coming under the head of "Repairs and preservation"—

For materials	\$3,290 85
For labor	4,972 20
Total	8,263 05

The amount expended under the head of "General maintenance" is—

For materials	\$4,156 04
For labor	21,768 34
Total	25,924 38

The amount expended under head of "Civil establishment" is—

Civil establishment	\$2,414 00
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The total expenditures during the fiscal year are—

For dry-dock	\$161,788 00
For repairs and preservation	8,263 05
For general maintenance	25,924 38
For civil establishment	2,414 00
Total expenditures	198,389 43

The estimates submitted by the authorities of the yard for the fiscal year ending 30th June, 1880, are—

For works of improvement	\$33,620 82
For repairs and preservation	34,958 15
For general maintenance	44,000 58
For civil establishment	3,417 35
Total estimates	148,996 90

MARE ISLAND, CAL.

The amount expended at this yard under the head of "Yard improvements" during the past fiscal year is—

Yard improvements	\$3,448 00
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which has been expended upon the new stone dry dock.

Under the head of "Repairs and preservation" there has been expended—

For materials	\$3,538 69
For labor	19,759 58
Total	23,298 27

The amount expended under the head of "General maintenance" is—

For materials	\$14,873 40
For labor	45,877 57
Total	60,750 97

The amount expended under head of "Civil establishment" is—

Civil establishment	\$6,162 87
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The amount expended under head of "Contingent" is—

Contingent	8,998 74
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The total expenditures at this yard during the fiscal year ending 30th June, 1878, are—

For works of improvement.....	\$3, 448 00
For repairs and preservation.....	23, 298 27
For general maintenance.....	60, 750 97
For civil establishment.....	6, 162 87
For contingent.....	8, 998 74

Total expenditures.....	102, 658 85
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The estimates submitted by the authorities of the yard for the fiscal year ending 30th June, 1880, are—

For works of improvement.....	\$1, 624, 698 18
For repairs and preservation.....	209, 000 00
For general maintenance.....	117, 560 00
For civil establishment.....	7, 900 00

Total.....	1, 959, 158 08
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SACKET'S HARBOR.

The amount expended at this station under the head of "General maintenance" during the fiscal year ending 30th June, 1878, is \$724.82.

The amount estimated for repairs and preservation during the fiscal year ending 30th June, 1880, is \$2,000.

KEY WEST, FLA.

The amount expended at this station under the head of "Repairs and preservation" during the past fiscal year is—

For materials.....	\$1, 027 48
For labor.....	1, 544 72

Total.....	2, 572 20
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The amount expended under the head of "General maintenance" is—

General maintenance.....	\$1, 163 75
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The total expenditures during the year are—

For repairs and preservation.....	\$2, 572 20
For general maintenance.....	1, 163 75

Total expenditures.....	3, 735 95
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The estimates submitted by the authorities at the station for the fiscal year ending 30th June, 1880, are—

For works of improvement.....	\$30, 000 00
For repairs and preservation.....	19, 450 00
For general maintenance.....	2, 175 00

Total estimates.....	51, 625 00
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NAVAL ASYLUM.

There were on the 1st July, 1877, 11 officers, 30 attendants, and 141 beneficiaries on the rolls of the asylum. During the fiscal year ending 30th June, 1878, 26 beneficiaries have been admitted, 14 have died, 4 have been dismissed for misconduct, 2 were discharged at their own request, and 1 sent to the hospital for the insane.

During the fiscal year the usual careful attention has been bestowed

upon the inmates, and everything necessary has been done to render the condition of the beneficiaries as comfortable as possible; as a general rule the conduct of these old sailors has been good. Occasionally there are unruly and disorderly men among them, but such cases are generally suppressed by a proper administration of the rules and regulations for the government of the institution.

The expenditures during the year have been—

For pay and pocket-money of beneficiaries	\$3,234 01
For tobacco.....	1,187 91
For clothing, boots and shoes.....	7,853 05
For subsistence	16,679 46½
For dry goods, lumber, coal and wood, paints, provender, hardware, and miscellaneous articles	7,518 32
For pay of employes.....	7,640 93
For furnaces, grates, and ranges	300 00
For water-rent and gas	1,735 12
For furniture and repairing same	499 25
For increase of library, and car-tickets	250 00
For cemetery and burial expenses	349 94
For repairs and preservation	936 59
Total	48,214 61½

Estimates have been submitted by the governor of the institution for its support during the fiscal year ending 30th June, 1880, amounting in the aggregate to \$77,559.

No. 1.—*Report of expenditures of navy-yards, stations, and Naval Asylum, for the fiscal year ending June 30, 1878.*

Yards and stations.	Appropriations.					Totals.
	Yard improve-ments.	Repairs and preservation.	General main-tenance.	Civil establish-ment.	Contingent.	
Portsmouth, N. H.		\$13,893 02	\$36,320 67	\$4,417 14		\$54,630 83
Boston, Mass.		22,280 79	54,229 13	4,417 25		80,927 17
New London, Conn.	\$144 44	309 40	4,962 18	1,014 00	\$65 00	6,495 02
New York, N. Y.		22,531 17	91,247 20	5,723 53		119,501 90
League Island, Pa.	125,829 18	24,322 16	51,973 17	6,921 25	10,400 00	219,445 76
Washington, D. C.		16,331 36	53,027 33	4,413 03	757 48	74,529 20
Norfolk, Va.		21,517 34	49,707 87	5,268 42	184 38	76,678 01
Pensacola, Fla.	161,788 00	8,263 05	25,924 38	2,414 00		198,389 43
Mare Island, Cal.	3,448 00	23,298 27	60,750 97	6,162 87	8,998 74	102,658 85
Sacket's Harbor, N. Y.			724 82			724 82
Key West, Fla.		2,572 20	1,163 75			3,735 95
Naval Asylum, Pa.	48,214 61					48,214 61
Wharf at Erie, Pa.					500 00	500 00
Totals	339,424 23	155,318 76	430,031 47	40,751 49	20,905 60	986,431 35

No. 2—Detailed report from navy-yards and stations of expenditures under "Repairs and preservation" during the fiscal year ending June 30, 1878.

Objects.	Portsmouth.	Boston.	New London.	New York.	League Island.	Washington.	Norfolk.	Pensacola.	Mare Island.	Key West.	Totals.
Yard buildings.	\$3,298 36	\$7,887 63	\$187 15	\$8,782 81	\$14,368 28	\$5,538 89	\$9,131 32	\$1,183 98	\$9,925 73	\$2,178 84	\$59,472 29
Officers' quarters.	1,349 80	5,022 43	50 23	2,190 74	546 57	1,271 47	2,403 59	1,097 23	6,498 36	.....	19,228 52
Wharves, bridges, landings, and boats.	1,369 84	383 38	30 94	1,217 38	342 90	4,618 83	2,223 67	3,283 13	2,166 74	.....	13,819 51
Roads, walks, gutters, and drains.	1,376 98	4,447 73	26 18	3,685 59	4,613 92	615 40	2,278 96	160 57	1,731 61	364 65	18,511 57
Fences and walls.	1,036 30	347 76	1 00	9,742 20	167 86	57 60	412 21	713 08	1,642 16	.....	11,100 17
Cranes, scows, and derricks.	81 00	211 92	.....	837 25	51 12	1,233 12	34 75	227 92	478 93	.....	2,700 01
Furnaces, forges, and heating apparatus, &c.	1,900 44	870 26	17 67	191 83	836 78	393 08	483 15	16 50	53 44	28 71	4,278 71
Trucks and scutes.	25 00	115 30	.....	84 22	17 52	716 20	134 07	.....	.....	.....	1,140 46
Water and gas works.	1,010 81	4,500 82	15 00	1,271 92	171 75	406 08	1,105 39	.....	439 37	.....	8,901 44
Dredging and scowging.	.....	49 22	.....	538 21	368 49	1,982 69	353 50	5 00	180 90	.....	1,753 33
Dry-dock.	1,020 61	235 26	.....	490 88	3,337 57	.....	2,732 67	653 64	170 77	.....	2,415 73
Miscellaneous repairs.	1,453 38	.....	.....	.....	.....	38 50	.....	.....	.....	.....	9,123 70
Totals.	13,893 62	22,280 79	300 49	22,531 17	24,322 16	16,331 30	21,517 34	8,293 05	23,298 27	2,572 20	153,518 76

No. 3.—Detailed report of expenditures, under "General maintenance," received from navy-yards and stations during the fiscal year ending June 30, 1878.

Objects.	Portsmouth.	Boston.	New London.	New York.	League Island.	Washington.	Norfolk.	Pensacola.	Mare Island.	Key West.	Sacket's Harbor.	Totals.
Freight and transportation	\$232 71	\$295 55	\$42 57	\$690 94	\$18 00	\$276 76	\$61 00	\$272 32	\$3,371 38	\$54 15		\$4,757 14
Printing, stationery, and advertising		17 00			1,218 14	313 12	243 57		1,104 16			4,747 23
Books, maps, models, and drawings		14 41			568 38	29 53	606 98		279 58			1,501 67
Purchase and repair of fire-engines	607 63	447 11		232 78	583 03		201 03	405 83	745 64			3,520 55
Machinery of every description and patent rights				235 74	1,294 35	2,225 68	118 87	306 35	2,856 86			7,483 90
Repairs on steam-engines and attendance on same	225 96	1,365 38		3,244 83	712 57	359 73	1,247 80	1,737 37	932 69			9,905 35
Purchases and maintenance of oxen and horses												
Carte, timber-wheels, and tools of every description	5,397 32	10,106 08	105 74	14,885 73	10,450 27	3,927 05	9,913 65	3,589 10	8,452 80			60,827 74
Postage on letters on public service and telegrams.	1,703 69	2,344 80	18 43	3,680 78	1,596 75	1,577 11	7,588 72	1,586 82	603 10			20,700 20
Furniture for government houses and offices in navy-yards	33 56	156 81	5 50	39 22	672 23	20 54	105 29	900 00	29 51			1,966 66
Coal and other fuel for yards and docks purposes	1,905 65	302 51		1,197 80	338 10	1,193 62	1,371 76	384 04	1,337 44			8,030 92
Candles, oil, and gas	3,549 66	2,461 76	72 60	1,468 57	2,308 39	1,566 35	562 23	270 00	2,349 09			14,608 65
Clearing and cleaning up yard and care of buildings	2,769 76	2,118 41	29 62	3,770 00	268 04	1,229 88	3,073 95	547 48	7,204 99			21,012 13
Attendance on fire, lights, fire-engines and apparatus	3,832 57	7,754 48	1,058 62	17,076 18	3,346 86	25,563 05	6,065 67	7,703 77	4,478 36	34 90		76,894 16
Incidental labor, not chargeable to other appropriations.	3,243 96	3,303 40	4 00	7,848 35	8,143 67	2,705 87	3,875 36	527 25	423 95			30,075 81
Water tax	5,988 71	779 38	1,343 16	8,224 27	6,975 97	1,612 27	1,487 07		7,689 74			34,835 39
Tolls and ferrriages	100 00	5,574 74	62 04	4,574 77	13 50		13 50	33 60	5,105 12		\$724 80	16,463 77
Pay of watchmen	5 53		32 00	4,162 00			141 00		2,950 68			3,291 21
Flags, awnings, and packing boxes	6,588 00	17,118 20	2,188 00	23,542 32	13,325 00	10,361 50	12,874 22	7,506 00	5,796 10	1,095 00		100,474 84
Rent of landing	60 74	66 11		43 42	143 22	65 27	126 70	64 45	40 78			610 69
Totals	36,320 67	54,229 13	4,962 18	91,247 20	51,973 17	53,027 33	49,707 87	25,924 38	80,750 97	1,163 75	724 82	430,031 47

No. 4.—*Estimates received from navy-yards, stations, and Naval Asylum, for fiscal year ending June 30, 1880.*

Yards and stations.	Appropriations.				
	Yard improvement.	Repairs and preservation.	General maintenance.	Civil establishment.	Totals.
Portsmouth.....	\$127,450 43	\$49,500 00	\$99,725 00	\$5,900 00	\$252,575 43
Boston.....	164,247 49	146,970 00	99,200 00	8,073 50	418,490 99
New London.....	318,469 10	1,825 70	23,915 00	7,977 25	352,187 05
New York.....	1,308,133 63	115,000 00	99,150 00	4,656 25	1,526,939 88
League Island.....	1,607,000 00	50,000 00	80,000 00	7,600 00	1,744,600 00
Washington.....	12,604 70	162,090 00	69,110 00	4,617 25	248,421 95
Norfolk.....	641,926 09	100,478 51	72,850 79	7,039 00	822,294 39
Pennscola.....	66,626 82	34,958 15	44,000 58	3,417 35	148,996 90
Mare Island.....	1,624,686 18	200,000 00	117,500 00	7,900 00	1,950,136 18
Hackett's Harbor.....		2,000 00			2,000 00
Key West.....	80,000 00	19,450 00	2,175 00		51,625 00
Naval Asylum.....	77,559 00				77,559 00
Totals.....	5,978,709 44	891,272 36	677,686 37	57,180 80	7,604,848 77

No. 5.—*Detailed estimates from yards and stations for works of improvement for fiscal year ending June 30, 1880.*

Yards and stations, and objects.	Estimates.	Totals.
PORTSMOUTH, N. H.		
For machinery-building.....	\$12,032 00	
For stables.....	20,927 50	
For paving, gutters, and drains.....	12,970 00	
For steam-engineering smithery.....	7,926 25	
For timber-shed.....	30,834 96	
For foundry.....	17,362 22	
For heating apparatus.....	17,613 50	
For water-works.....	7,784 00	
		\$127,450 43
BOSTON, MASS.		
For boundary-wall.....	15,618 20	
For water and gas works.....	21,226 28	
For cart-shed.....	16,511 41	
For civil engineers' workshops, &c.....	55,450 19	
For extension of officers' quarters.....	4,620 23	
For paving and grading.....	31,926 18	
For new floor to rope-walk.....	18,895 00	
		164,247 49
NEW LONDON, CONN.		
For quay-wall.....	233,900 00	
For grading.....	75,000 00	
For foundations for yards and docks storehouse, &c.....	9,569 10	
		318,469 10
NEW YORK, N. Y.		
For commencing new dry-dock.....	1,000,000 00	
For shipwrights' shed and oakum-store.....	23,873 25	
For timber-shed.....	61,120 54	
For timber and knee basin.....	100,321 47	
For yard-wall (Flushing and Washington avenues).....	90,000 00	
For coal-depot.....	32,818 37	
		1,308,133 63
LEAGUE ISLAND, PA.		
For commencing quay-wall on Delaware front.....	392,000 00	
For commencing quay-wall for deep basin.....	224,000 00	
For storehouse for construction and repair.....	197,000 00	
For storehouse for equipment and recruiting.....	208,000 00	
For dredging and filling in.....	810,000 00	
For grading and graveling.....	90,000 00	
For sewerage and drainage (commencing).....	50,000 00	
For water-works.....	72,600 00	
For improvement of dikes.....	60,000 00	
		1,607,000 00
WASHINGTON, D. C.		
For purchase of square No. 853.....		12,604 79

No. 5.—Detailed estimates from yards and stations, &c.—Continued.

Yards and stations, and objects.	Estimates.	Totals.
NORFOLK, VA.		
For timber-shed, No. 32.....	\$42,959 36	
For timber-shed, No. 33.....	42,959 36	
For coal-house, No. 64.....	54,485 59	
For chain and cordage store, No. 63.....	21,563 48	
For railroad and engine house.....	52,480 73	
For extension of erecting shop, No. 23.....	14,543 25	
For boiler-shop, No. 41.....	43,732 40	
For coal, engine, and boiler house, No. 8.....	7,921 02	
For molting-sand house, No. 25.....	5,400 26	
For extension of south wing of machine-shop.....	4,865 99	
For officers' quarters, G.....	4,819 47	
For extension of quay-wall.....	320,775 00	
For cistern near foundry.....	4,869 18	
For wet-dock at Saint Helena.....	40,501 00	
		\$641,926 09
PENSACOLA, FLA.		
For timber-shed, No. 11.....	28,590 03	
For spar-shed and cooper's shop, No. 38.....	38,030 79	
		66,620 82
MARE ISLAND, CAL.		
For continuation of stone dry-dock.....	650,000 00	
For tools and machinery for machine and joiner's shops.....	28,000 00	
For removal of gas-holder and gas-works.....	5,238 00	
For completing water-mains and service-pipes.....	15,393 34	
For roads and pavements.....	67,613 00	
For work-shop and store-house for yards and docks.....	193,984 01	
For extension of timber-shed, No. 94.....	20,000 00	
For carpenter's shop and mold-loft.....	125,875 00	
For dredging and ecowing.....	45,000 00	
For quay-wall and wharves.....	100,000 00	
For new timber-shed, No. 58.....	99,544 98	
For commencing ship-house and launching-ways.....	189,029 85	
For ferry-boats.....	85,000 00	
		1,624,686 18
KEY WEST, FLA.		
For new wharf.....		30,000 00
NAVAL ASYLUM.		
For support of beneficiaries, improvements, and all expenses.....		77,559 00
Aggregate.....		5,978,709 44

No. 6.—Detailed estimates from navy-yards and stations for "Repairs and preservation" for the fiscal year ending June 30, 1890.

Objects.	Portsmouth.	Boston.	New London.	New York.	League Island.	Washington.	Norfolk.	Pensacola.	Mare Island.	Sacket's Harbor.	Key West.	Totals.
Yard buildings.....	\$25,000 00	\$35,000 00	\$394 70	\$30,000 00	\$17,110 00	\$47,000 00	\$34,280 00	\$19,412 55	\$20,000 00	\$2,000 00	\$2,500 00	\$232,687 48
Officers' quarters.....	4,500 00	10,000 00	280 00	5,000 00	1,340 00	12,000 00	2,244 63	2,237 68	10,000 00	.....	.....	47,662 31
Wharves, bridges, landings, and boats.....	4,500 00	10,000 00	387 00	20,000 00	2,100 00	33,029 00	11,852 85	7,069 80	15,000 00	.....	16,000 00	119,938 65
Roads, walks, gutters, and drains.....	3,000 00	8,000 00	243 00	25,000 00	3,940 00	4,000 00	17,887 19	2,471 14	8,000 00	.....	300 00	72,841 33
Fences and walls.....	300 00	2,500 00	816 00	1,000 00	500 00	21,711 00	5,850 25	.....	6,000 00	.....	150 00	38,327 25
Cranes, scows, and derricks.....	4,000 00	2,500 00	.....	1,000 00	830 00	7,800 00	6,409 67	167 70	45,000 00	.....	.....	67,807 87
Furnaces, forges, heating apparatus, &c.....	3,000 00	1,500 00	105 00	2,000 00	470 00	12,250 00	282 50	.....	4,000 00	.....	.....	23,607 50
Trucks and scales.....	3,100 00	5,000 00	.....	8,000 00	5,120 00	2,300 00	1,220 27	670 50	5,900 00	.....	.....	27,410 77
Water and gas works.....	3,500 00	10,000 00	100 00	4,000 00	2,540 00	1,000 00	2,706 81	2,569 50	6,000 00	.....	.....	32,416 31
Dredging and scowling.....	1,500 00	500 00	.....	10,000 00	2,480 00	11,000 00	13,923 28	.....	20,000 00	.....	.....	57,903 28
Dry-dock.....	1,100 00	60,470 00	.....	4,000 00	4,880 00	5,000 00	1,392 21	.....	52,000 00	.....	.....	126,242 21
Miscellaneous repairs.....	.....	1,500 00	.....	5,000 00	8,590 00	5,000 00	2,428 62	290 28	18,000 00	.....	500 00	41,417 90
Totals.....	49,500 00	146,970 00	1,825 70	115,000 00	50,000 00	162,090 00	100,478 51	34,958 15	209,000 00	2,000 00	19,450 00	891,272 36

No. 7.—Detailed estimates for "General maintenance," received from yards and stations, for the fiscal year ending June 30, 1880.

Object.	Portsmouth, N. H.	Boston, Mass.	New London, Conn.	New York, N. Y.	League Island, Pa.	Washington, D. C.	Norfolk, Va.	Pensacola, Fla.	Mare Island, Cal.	Key West, Fla.	Totals.
Freight and transportation.....	\$50 00	\$100 00	\$100 00	\$50 00	\$100 00	\$50 00	\$100 00	\$500 00	\$0 00	.....	\$10,050 00
Printing, stationery, and advertising.....	500 00	1,500 00	200 00	1,000 00	1,000 00	1,200 00	1,500 00	500 00	2,500 00	\$35 00	3,935 00
Book, maps, models, and drawings.....	100 00	1,500 00	.....	100 00	500 00	50 00	1,400 70	100 00	4,700 00	.....	6,790 70
Purchase and repair of fire-engines.....	10 00	1,000 00	.....	300 00	800 00	4,000 00	1,821 70	4,218 75	2,000 00	.....	24,653 45
Machinery of every description and patent rights.....	100 00	1,000 00	3,300 00	300 00	5,000 00	1,500 00	2,281 50	210 00	4,000 00	.....	17,791 50
Repairs on steam-engines and attendance on same.....	100 00	2,000 00	1,138 00	3,500 00	2,000 00	5,000 00	2,643 36	3,730 50	9,000 00	.....	26,112 86
Purchase and maintenance of oxen and horses, pay of hired teams, &c.....	7,000 00	16,000 00	4,258 00	15,000 00	15,000 00	4,500 00	15,359 06	4,772 30	20,000 00	.....	101,887 86
Carts, timber-wrecks, and tools of every description.....	2,500 00	10,000 00	3,440 00	4,000 00	5,000 00	2,000 00	9,150 04	2,760 00	3,500 00	75 00	42,425 04
Postage on letters on public service and telegrams.....	50 00	250 00	300 00	50 00	500 00	50 00	200 00	900 00	60 00	.....	2,320 00
Furniture for government houses and offices in navy-yards.....	10,000 00	2,000 00	1,200 00	1,500 00	1,000 00	5,000 00	4,864 99	600 00	9 00	100 00	32,004 99
Coal and other fuel for yards and docks purposes.....	9,500 00	3,000 00	1,200 00	2,500 00	2,500 00	2,500 00	1,051 33	.....	7,000 00	.....	28,751 35
Candles, oil, and gas.....	2,500 00	3,000 00	1,200 00	4,500 00	8,500 00	2,000 00	3,350 00	930 00	9,500 00	40 00	28,520 00
Cleaning and cleaning up yard and care of buildings.....	5,000 00	18,000 00	1,600 00	17,000 00	5,000 00	13,000 00	7,311 09	9,688 82	2,000 00	375 00	85,475 01
Attendance on fire, light, fire-engines and apparatus.....	9,000 00	3,500 00	.....	8,500 00	9,000 00	9,000 00	4,792 80	534 18	3,000 00	300 00	42,326 98
Incidental labor, not chargeable to other appropriations.....	100 00	10,000 00	3,920 00	9,500 00	15,000 00	8,000 00	1,535 00	4,239 83	11,000 00	.....	62,404 98
Wages tax.....	.....	.....	100 00	5,500 00	.....	.....	30 00	201 00	5,700 00	.....	21,631 60
Tools and forage.....	.....	.....	150 00	200 00	.....	.....	280 00	.....	3,000 00	.....	3,680 00
Pay of watchmen.....	13,000 00	19,000 00	2,920 00	25,000 00	13,500 00	12,010 00	15,877 50	9,788 00	18,000 00	1,250 00	190,325 50
Flags, awnings, and packing-boxes.....	75 00	250 00	250 00	150 00	100 00	250 00	561 70	191 40	600 00	.....	2,453 10
Rent of landing.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	75 00
Totals.....	69,725 00	99,200 00	23,915 00	99,150 00	80,000 00	69,110 00	72,850 79	44,000 58	117,560 00	2,175 00	677,686 37

MARE ISLAND, CALIFORNIA.

For continuation of stone dry-dock, \$75,000.

During the past three years the work upon this important object has been dragging along at a snail's pace, owing to the apparent unwillingness of Congress to appropriate money for the completion of this great national work. Three years ago there was an appropriation of \$50,000, which was barely sufficient to keep the works in order, and the next year not a dollar was appropriated, and consequently the progress was suspended and the year lost. For the present year \$75,000 were appropriated, and the work has been resumed, and by the 1st of December next nearly all of the appropriation will be expended. The bureau in its annual reports has repeatedly urged the necessity for large appropriations for this object, that it might be pushed forward to at least a point of safety; but as the amounts appropriated seem to indicate the wishes of Congress on the subject, the small amount appropriated for the present fiscal year is estimated for the next.

REPAIRS AND PRESERVATION.

The estimate under this head is the same as the amount appropriated for the present fiscal year. A much larger sum might be judiciously expended and result in great benefit to the government. Many of the buildings in the navy-yards are large and costly structures, and a neglect to apply timely repairs must necessarily result in rapid deterioration and loss to the government.

GENERAL MAINTENANCE.

The estimate submitted for this object is the same as the appropriation for the present fiscal year, and is much less than appropriations for former years. To meet the numerous demands upon this fund requires the exercise of great care and economy, and often causes much embarrassment.

CONTINGENT.

The small amount asked for for this object is to defray the expense of unforeseen casualties which may occur at the various yards during the fiscal year, and its expenditure is always carefully guarded.

NAVAL ASYLUM.

The amount submitted for this institution is the same as that appropriated for the present fiscal year, and it is believed that by prudent and careful management it will meet the necessary expenses of the institution.

Accompanying this report is an abstract of offers for supplies, received for furnishing articles coming under the cognizance of the Bureau of Yards and Docks, made in conformity to the act of Congress approved March 3, 1843.

The following estimates for the fiscal year ending June 30, 1880, are respectfully submitted:

Sheet No. 1. For support of Bureau of Yards and Docks..	\$12,780 00
Sheet No. 2. General maintenance, Yards and Docks, and contingent.....	460,000 00
Sheet No. 3. Support of Naval Asylum	60,809 00
Sheet No. 4. Repairs and preservation of navy-yards.....	300,000 00
Sheet No. 5. Improvements at navy-yards	75,000 00
Sheet No. 6. Civil establishment.....	37,906 25
	<hr/>
	946,495 25

I am, very respectfully, your obedient servant,

R. L. LAW,
Chief of Bureau.

Hon. R. W. THOMPSON,
Secretary of the Navy.

Estimates of appropriations required for the service of the fiscal year ending June 30, 1880 by the Bureau of Yards and Docks, Navy Department.

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Amount appropriated for the current fiscal year ending June 30, 1879.
SALARIES.		
One chief clerk, per act June 19, 1878	\$1,800 00	\$1,800 00
Draughtsman, and clerk of class four, per act June 19, 1878	1,800 00	1,800 00
One clerk of class four, per act June 19, 1878	1,800 00	1,800 00
One clerk of class three, per act June 19, 1878	1,600 00	1,600 00
One clerk of class two, per act June 19, 1878	1,400 00	1,400 00
One clerk of class one, per act June 19, 1878	1,200 00	1,200 00
One clerk, per act June 19, 1878	1,000 00	1,000 00
One messenger, per act June 19, 1878	720 00	720 00
One laborer, per act June 19, 1878	680 00	680 00
	<hr/>	<hr/>
	11,980 00	11,980 00
CONTINGENT EXPENSES.		
Stationery, books, plans, drawings, incidental labor, and miscellaneous items	800 00	800 00
	<hr/>	<hr/>
	12,780 00	12,780 00
FOR GENERAL MAINTENANCE.		
For general maintenance of yards and docks, freights and transportation of materials and stores; books, maps, models, and drawings; purchase and repair of fire-engines; machinery and patent right to use the same; repairs of steam-engines and attendance on the same; purchase and maintenance of oxen, horses, and driving teams; carts and timber-wheels for navy-yard purposes; tools, and repairs of the same; postage on letters and other mailable matter on public service, and telegrams; furniture for government houses and offices in navy-yards; coal and other fuel; candles, oil, and gas; cleaning and clearing yards, and care of public buildings; attendance on fire, lights, fire-engines, and apparatus; for clerical and incidental labor at navy-yards; water-tax; tolls and ferriages; pay of watchmen in navy-yards; awnings and packing-boxes for yards and docks purposes	440,000 00	440,000 00
CONTINGENT.		
For contingent expenses that may arise at navy-yards and stations	20,000 00	20,000 00
	<hr/>	<hr/>
	460,000 00	460,000 00

Estimates of appropriations required for the service of the fiscal year, &c.—Continued.

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Amount appropriated for the current fiscal year ending June 30, 1878.
NAVAL ASYLUM, PHILADELPHIA.		
One superintendent.....	\$600 00	\$600 00
One steward.....	480 00	480 00
One matron.....	360 00	360 00
One cook.....	240 00	240 00
Two assistant cooks, at \$168 each.....	336 00	336 00
One chief laundress.....	192 00	192 00
Four laundresses, at \$168 each.....	672 00	672 00
Eight scrubbers and waiters, at \$168 each.....	1,344 00	1,344 00
Six laborers, at \$240 each.....	1,440 00	1,440 00
One stable-keeper and driver.....	360 00	360 00
One master at arms.....	480 00	480 00
One corporal.....	300 00	300 00
One barber.....	360 00	360 00
One carpenter.....	845 00	845 00
For water-rent and gas.....	8,009 00	8,009 00
For cemetery, burial expenses, headstones, &c.....	2,000 00	2,000 00
For improvement of grounds.....	500 00	500 00
For furniture, and repairs of same.....	500 00	500 00
For repairs to buildings, furnaces, grates, &c.....	2,000 00	4,500 00
For car-tickets.....	2,900 00	
For increase of library, rebinding books, &c.....	100 00	450 00
For support of beneficiaries.....	300 00	
	43,500 00	45,000 00
	60,809 00	60,809 00
Repairs and preservation at navy-yards.....	\$300,000 00	\$300,000 00
NAVY-YARD, MARE ISLAND, CAL.		
For continuation of work on stone dry-dock.....	75,000 00	75,000 00
NAVY-YARD, PORTSMOUTH, N. H.		
1 clerk.....	1,400 00	
1 clerk.....	1,300 00	
1 writer.....	1,017 25	
	3,717 25	
NAVY-YARD, BOSTON, MASS.		
1 clerk.....	1,400 00	
1 clerk.....	1,300 00	
1 writer.....	1,017 25	
	3,717 25	
NAVAL STATION, NEW LONDON, CONN.		
1 writer.....	1,017 25	
NAVY-YARD, BROOKLYN, N. Y.		
1 clerk.....	1,400 00	
1 clerk.....	1,300 00	
1 writer.....	1,017 25	
1 writer.....	939 00	
1 draughtsman.....	1,565 00	
	6,221 25	
NAVY-YARD, LEAGUE ISLAND, PA.		
1 clerk.....	1,400 00	
1 clerk.....	1,300 00	
1 writer.....	1,017 25	
1 writer.....	939 00	
1 draughtsman.....	1,565 00	
	6,221 25	

Estimates of appropriations required for the service of the fiscal year, &c.—Continued.

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Amount appropriated for the current fiscal year ending June 30, 1879.
NAVY-YARD, WASHINGTON, D. C.		
1 clerk	\$1,400 00	.....
1 clerk	1,300 00	.....
1 writer	1,017 25	.....
	3,717 25	.....
NAVY-YARD, NORFOLK, VA.		
1 clerk	1,400 00	.....
1 clerk	1,300 00	.....
1 writer	1,017 25	.....
1 writer	939 00	.....
	4,656 25	.....
NAVY-YARD, PENSACOLA, FLA.		
1 clerk	1,400 00	.....
1 writer	1,017 25	.....
	2,417 25	.....
NAVY-YARD, MARE ISLAND, CAL.		
1 clerk	1,400 00	.....
1 clerk	1,300 00	.....
1 writer	1,017 25	.....
1 writer	939 00	.....
1 draughtsman	1,565 00	.....
	6,221 25	.....
	37,906 25	.....

Respectfully submitted.

R. L. LAW,
Chief of Bureau.

ABSTRACT OF OFFERS FOR FURNISHING SUPPLIES FOR THE SEVERAL NAVY-YARDS COMING UNDER THE COGNIZANCE OF THE BUREAU OF YARDS AND DOCKS.

*Abstract of offers received for furnishing material for the navy-yard, Portsmouth, N. H.,
under the cognizance of the Bureau of Yards and Docks, for fiscal year ending 30th June,
1878.*

August 25, 1877.—Class No. 16. Ship-chandlery:

John H. Pray, Sons & Co..	*\$400 00
Myers & Lucke	489 60
S. C. Carll.....	525 80

November 12, 1877.—Class No. 15. Paints, oils, and glass:

Rider & Cotton.....	*\$36 03½
G. T. Vaughn	39 15
A. P. Wendell & Co.....	41 77
Isaiah Wilson	43 50

November 12, 1877.—Class No. 17. Hardware:

Isaiah Wilton	*\$26 26
Rider & Cotton.....	26 44
G. T. Vaughn	26 73
A. P. Wendell & Co.....	30 42

November 12, 1877.—Class No. 20. Hay and straw:

E. C. Spinney	*\$691 00
Alvin Libbey	672 00
Benjamin F. Cate	734 00
Stephen Grant.....	714 00

November 12, 1877.—Class No. 17. Hardware:

G. T. Vaughn	*\$9 60
--------------------	---------

Class No. 17.—Continued.

A. P. Wendell & Co.	\$10 25
Rider & Cotton.....	16 30

February 2, 1878.—Class No. 15. Paints, oils, and glass:

Rider & Cotton.....	*\$263 85
G. T. Vaughn	272 00

February 19, 1878.—Class No. 21. Provender:

E. F. Nealley.....	*\$72 00
Charles Robinson & Son ..	72 00
Lewis & Brooks	73 20

Class No. 27. Anthracite coal:

C. E. Walker & Co	*\$1,395 00
L. G. Burnham & Co	1,455 00
E. F. Sise & Co.....	1,497 00

Class No. 27. Anthracite coal:

C. E. Walker & Co	*\$750 00
L. G. Burnham & Co	799 50
E. F. Sise & Co.....	801 00

Class No. 29. Bituminous coal:

C. E. Walker & Co	\$170 00
L. G. Burnham & Co	165 00
E. F. Sise & Co.....	180 00

*Abstract of offers received for furnishing miscellaneous articles for navy-yard at Portsmouth,
N. H., October 16, 1877.*

Class No. 1:

Rider & Cotton.....	†\$46 39
Isaiah Wilson	54 28
John P. Sweetser	58 80
A. P. Wendell & Co.....	378 13

Class No. 2:

E. F. Jewell	†706 00
G. A. Hammond	797 50
Samuel Adams & Co.....	776 00

Class No. 3:

Samuel Adams & Co.....	†58 75
C. E. Walker & Co	63 00

Class No. 4:

Rider & Cotton	90 00
Isaiah Wilson	†88 12
John P. Sweetser	96 25
A. P. Wendell, & Co.....	101 25

Class No. 5:

Rider & Cotton.....	†\$33 20
Isaiah Wilson	41 10
John P. Sweetser	53 00
A. P. Wendell & Co	42 23
G. T. Vaughn	45 75
John H. Bailey	49 37

Class No. 6:

Rider & Cotton.....	†468 97
Isaiah Wilson	495 86
A. P. Wendell & Co	502 63
John H. Bailey	483 90
C. A. Burgess & Co.....	530 30

Class No. 7:

Rider & Cotton.....	†72 78
Isaiah Wilson	82 31
John P. Sweetser	81 50
A. P. Wendell & Co	84 26

* Accepted.

† Awarded.

Abstract of offers received for furnishing miscellaneous articles, &c.—Continued.

Class No. 7—Continued.

G. T. Vaughn.....	\$93 99
N. F. Mathis & Co	98 25

Class No. 8:

Rider & Cotton.....	*587 88
John P. Sweetser.....	671 20
N. F. Mathis & Co	603 25

Class No. 9:

E. H. Jewell.....	*18 00
G. A. Hammond	20 00
Samuel Adams & Co.....	25 00

Class No. 10:

Rider & Cotton.....	133 05
Isaiah Wilson	*131 78
John P. Sweetser	147 53
A. P. Wendell & Co	156 33

Class No. 11:

Rider & Cotton.....	106 19
Isaiah Wilson	121 35
A. P. Wendell & Co.....	99 79
G. T. Vaughn.....	*98 54

Class No. 12:

Rider & Cotton.....	193 82
Isaiah Wilson	208 46
A. P. Wendell & Co	*150 10
John H. Bailey	169 00

Class No. 13:

Rider & Cotton	*99 75
Isaiah Wilson	102 00
John P. Sweetser	100 87
A. P. Wendell & Cotton ...	100 13

Class No. 14:

E. M. Brown & Co.....	*124 33
C. Dwight Hanscom & Co.	130 45
Sheldon Brothers.....	141 64

Class No. 15:

John S. Tilton.....	*81 64
C. A. Shannon & Son....	104 61

Class No. 16:

John F. Plaisted.....	*31 50
Chas. G. Brown.....	31 50
A. J. McIntire.....	35 00
Joseph N. Norton.....	40 25

Class No. 17:

C. E. Walker & Co.....	*\$2,760 00
E. F. Sise & Co.....	3,176 25
C. A. Campbell.....	3,322 00

Class No. 18:

Rider & Cotton.....	*322 50
Isaiah Wilson	359 90
A. P. Wendell & Co.....	412 60
G. T. Vaughn.....	411 74
N. F. Mathis & Co.....	359 50

Class No. 19:

Rider & Cotton.....	*19 25
Isaiah Wilson	23 25
A. P. Wendell & Co.....	22 45
G. T. Vaughn.....	20 72
John H. Bailey.....	22 40
N. F. Mathis & Co.....	23 50

Class No. 20:

Rider & Cotton.....	*172 35
G. T. Vaughn	174 00

Class No. 21:

Rider & Cotton.....	22 18
G. T. Vaughn.....	*21 65
N. F. Mathis & Co.....	23 31
Butler & Leighton.....	25 13

Class No. 22:

Mercer Goodrich.....	*70 43
Willis G. Myers.....	74 81
Hall L. Davis.....	96 20

Class No. 23:

Mercer Goodrich.....	84 65
Willis G. Myers	*78 34
Hall L. Davis	83 43

Class No. 24:

G. A. Hammond.....	180 00
E. C. Senney.....	*169 00
George H. Hayes.....	200 00
Chas. H. Bartlett.....	188 70
Timothy Furbish.....	185 90
Alvin L. Dibbey.....	184 80
Louis De Rochemont.....	183 60
E. C. Moody.....	178 00
C. W. Cottle.....	179 00

Abstract of offers received for furnishing materials for navy-yard, Boston, Mass.

August 10, 1878.—Class No. 6.

Lumber:	
M. M. Tickey.....	*\$510 39

January 3, 1878.—Class No. 15.

Glass:

Lambert Bros.....	119 40
R. Sherburne.....	83 08
Page, Harding & Co.....	74 60
G. D. Putnam & Co.....	172 60

March 6, 1878.—Class No. 23.

Belting, &c.:

Ordway, Kimball & Co....	\$98 25
G. D. Putnam & Co.....	95 90
French & Coffin.....	187 50

June 29, 1878.—Class No. 17.

Hardware:

J. L. Fairbanks & Co.....	59 72
Stephens Vice Co.....	144 50
John Mullett.....	45 00

* Awarded.

† Accepted.

Scale of offers for supplies for the navy-yard, Boston, Mass., September, 27, 1877.

Class No. 5. Oak and hard wood:		Class No. 17—Continued.	
John Trickey.....	\$180 00	M. Lissberger.....	†\$120 35
James & Abbott.....	*165 00	Class No. 18. Stationery:	
Watson & Pittinger.....	240 00	W. H. Dempsey.....	*271 80
Class No. 6. White pine, spruce, juniper, and cypress:		Class No. 20. Hay and straw:	
John Trickey.....	1,460 00	John Trickey.....	1,425 00
James & Abbott.....	1,420 00	John Mullett.....	*1,377 60
Watson & Pittinger.....	1,890 00	L. L. De Rochement.....	1,470 00
Geo. D. Putnam & Co.....	1,179 20	Class No. 21. Provender:	
Class No. 7. Lime, hair, and plaster:		John Trickey.....	722 75
J. H. Walker.....	35 00	John Mullett.....	*682 50
John H. Trickey.....	*27 50	Class No. 22. Charcoal:	
John Mullett.....	30 00	J. H. Walker.....	39 75
Class No. 8. Cement:		David Babcock & Co.....	33 00
J. H. Walker.....	77 50	George D. Putnam & Co..	37 50
John Trickey.....	75 00	John Mullett.....	*29 25
John Mullett.....	*72 00	Class No. 23. Belting, packing, and hose:	
Class No. 11. Iron, iron nails, and spikes:		J. H. Walker.....	223 71
J. H. Walker.....	*235 62	George D. Putnam & Co..	*209 25
M. Lissberger.....	†176 00	M. Lissberger.....	†163 75
Class No. 12. Steel:		Class No. 24. Sperin and lubricating oil:	
J. H. Walker.....	*116 25	J. H. Walker.....	131 82
M. Lissberger.....	†108 50	David Babcock & Co.....	129 78
Class No. 15. Paints, oils, and glass:		George D. Putnam & Co..	*116 76
J. H. Walker.....	548 07	John Mullett.....	129 36
Geo. D. Putnam & Co.....	*545 68	Class No. 25. Iron-work, piping, &c.:	
M. Lissberger.....	†469 90	J. H. Walker.....	*136 70
Class No. 16. Ship-chandlery:		M. Lissberger.....	†81 00
J. H. Walker.....	*148 85	Class No. 27. Anthracite coal:	
M. Lissberger.....	136 10	Samuel G. French.....	1,820 40
Class No. 17. Hardware:		John Street & Co.....	1,881 00
J. H. Walker.....	*152 55	David Babcock & Co.....	*1,652 30
		George D. Putnam & Co..	2,091 00

Abstract of offers received for furnishing materials for the navy-yard, New York, during the fiscal year ending June 30, 1878.

July 25, 1877.—Class No. 6. White pine, spruce, &c.:		Class No. 6—Continued.	
Watson & Pittinger.....	*\$84 00	A. Ammann.....	\$210 00
A. Ammann.....	87 50	D. Babcock & Co.....	202 80
D. Babcock & Co.....	87 50	August 20, 1877.—Class No. 8. Cement:	
Class No. 2. Stone:		Brainerd & Fosket.....	2,260 50
Brainerd & Fosket.....	706 35	Washburn & Barnes.....	2,296 80
D. Babcock & Co.....	*682 20	D. Babcock & Co.....	*2,138 80
August 4, 1877.—Class No. 23. Belting, &c.:		January 23, 1878.—Class No. 4. Lumber:	
G. H. Creed.....	134 90	D. Babcock & Co.....	*247 50
Walton Bros.....	140 34	Cross, Austin & Co.....	252 50
D. Babcock.....	*130 40	February 13, 1878.—Class No. 23. Belting, &c.:	
Class No. 6. White pine, spruce, &c.:		D. Babcock & Co.....	*162 23
Watson & Pittinger.....	*191 88	J. H. Redfield.....	164 46

* Accepted.

† Received too late.

Abstract of offers received for furnishing materials, &c.—Continued.

Class No. 4.—Lumber:		May 13, 1878.—Class No. 15.	
D. Babcock & Co.....	\$261 83	Paints, oils, and glass:	
J. W. Duryee.....	*259 20	David Babcock & Co.....	*\$174 52
J. H. Redfield.....	305 00	G. W. Hall.....	178 35
Class No. 5.—Oak and hard wood:		May 13, 1878.—Class No. 15.	
J. W. Duryee.....	90 00	Paints, oils, and glass:	
D. Babcock & Co.....	87 50	Davidson, Houghton & Co.....	300 00
J. H. Redfield.....	*45 00	Averill Paint Company....	*270 00
May 27, 1878.—Class No. 2.		D. Babcock & Co.....	400 00
Stone:		George W. Hall.....	400 00
D. Babcock & Co.....	*275 00	June 5, 1878.—Class No. 5. Oak	
Patrick Hanlon.....	280 00	and hard wood:	
Brainerd & Fosket.....	285 00	Watson & Pittinger.....	176 00
April 23, 1878:		Duryee & Ludlow.....	*174 00
Brainerd & Fosket.....	*328 00	D. Babcock & Co.....	195 00
P. Lyman.....	338 00	June 5, 1878.—Class No. 5.	
D. Babcock & Co.....	375 00	White pine, &c.:	
May 13, 1878:		Watson & Pittinger.....	96 00
L. Kennedy.....	*635 00	Duryee & Ludlow.....	*86 00
D. Babcock & Co.....	860 00	D. Babcock & Co.....	99 00
H. Stollmyer & Co.....	910 00	June 19, 1878.—Class No. 15—	
Brainerd & Fosket.....	700 00	Continued:	
P. Lyman.....	767 50	D. Babcock & Co.....	308 00
C. Hancan.....	865 00	J. Lucas & Co.....	280 00
June 19, 1878:		Averill & Co.....	270 00
F. A. Madden.....	880 00	National Paint Company..	*260 00
M. Smith.....	960 00	June 19, 1878:	
D. Babcock & Co.....	960 00	D. Babcock & Co.....	*263 00
J. M. Shannon.....	*860 00	National Paint Company..	310 00
C. D. Bodine.....	920 00	Averill Paint Company....	335 00
June 19, 1878.—Class No. 2.		J. Lucas & Co.....	*40 75
Stone—3 lots:		D. Babcock & Co.....	43 75
F. A. Madden.....	740 00	June 19, 1878.—Class No. 8. Ce-	
D. Babcock & Co.....	800 00	ment:	
E. Sweeney.....	780 00	E. Sweeny.....	*90 00
J. J. Buck.....	760 00	D. Babcock & Co.....	105 00
J. J. Buck.....	*360 00	June 19, 1878.—Class No. 17.	
E. Sweeney.....	400 00	Hardware:	
D. Babcock & Co.....	360 00	D. Babcock & Co.....	*155 00
T. Madden.....	400 00	J. J. Haely.....	220 00
F. A. Madden.....	170 00	W. W. Wooley.....	175 00
D. Babcock & Co.....	180 00	June 19, 1878.—Class No. 4.	
E. Sweeney.....	*160 00	Lumber:	
J. J. Buck.....	175 00	D. Babcock & Co.....	294 00
E. Sweeney.....	160 00	Duryee & Ludlow.....	*200 00
J. J. Buck.....	170 00	Watson & Pittinger.....	272 00
D. Babcock & Co.....	180 00	June 29, 1878.—Class No. 27.	
T. A. Wadden.....	*150 00	Anthracite coal:	
April 23, 1878.—Class No. 32.		D. Babcock & Co.....	*2,540 00
Machinery and tools:		S. G. French.....	2,712 50
F. T. Rowland.....	*270 00	A. F. Nathan.....	2,760 75
Clapp & Jones.....	500 00	James D. Leary.....	2,679 00
Ward, Stanton & Co.....	1,000 00	July 26, 1877.—Class No. 27.	
May 13, 1878.—Class No. 15.		Anthracite coal:	
Paints, oils, and glass:		Samuel G. French.....	*1,099 20
D. Babcock & Co.....	400 00	J. H. Redfield.....	1,203 80
Averill Paint Co.....	*270 00	J. H. Walker.....	1,167 50
Davidson, Houghton & Co.	300 00	D. Babcock & Co.....	1,102 00
G. W. Hall.....	400 00	James D. Leary.....	1,196 80

Scale of offers for supplies for the navy-yard, Brooklyn, N. Y., September 27, 1877.

Class No. 1. Brick:		Class No. 14—Continued.	
David Babcock & Co	*\$297 50	George H. Creed	*\$70 57
J. H. Walker	321 50	J. H. Walker	75 96
Class No. 2½. Stone:		M. Lissberger	87 85
David Babcock & Co	*1,725 00	Class No. 15. Paints, oils, and glass:	
Class No. 3. Yellow-pine timber:		David Babcock & Co	1,313 15
Robert J. Nealley	420 00	Robert J. Nealley	1,424 70
W. A. Greenleaf	*330 50	James D. Peck, treasurer	1,320 70
James & Abbott	384 00	E. A. Boyd	1,409 94
Watson & Pittinger	430 00	Bellah, Quigley & Co.	1,349 65
Class No. 5. Oak and hard wood:		E. F., J. E., & H. Holbrook	1,284 00
W. A. Greenleaf	*270 00	George H. Creed	*1,232 75
James & Abbott	399 00	J. H. Walker	1,309 60
Watson & Pittinger	605 00	M. Lissberger	1,365 25
Class No. 6. White pine, spruce, &c.:		Class No. 16. Ship chandlery:	
W. A. Greenleaf	*735 00	David Babcock	*964 26
James & Abbott	898 00	J. H. Walker	1,083 94
Watson & Pittinger	762 00	M. Lissberger	1765 09
Class No. 7. Lime, hair, and plaster:		Class No. 17. Hardware:	
David Babcock & Co	47 50	J. H. Walker	*581 44
W. A. Greenleaf	*39 00	M. Lissberger	†469 95
J. H. Walker	41 75	Class No. 18. Stationery:	
Class No. 8. Cement:		Arthur & Bonnell	498 69
David Babcock & Co	*63 00	W. H. Dempsey	*458 50
W. A. Greenleaf	80 00	Class No. 20. Hay and straw:	
James D. Peck, treasurer ..	90 00	E. R. Shipman	*1,587 00
J. H. Walker	85 50	Class No. 21. Provender:	
Class No. 9. Gravel and sand:		E. R. Shipman	*1,507 50
David Babcock & Co	401 00	Class No. 22. Charcoal:	
J. H. Walker	*384 50	David Babcock & Co	*\$36 00
Class No. 9½. Molding and fire sand and fire-clay:		J. H. Walker	36 75
David Babcock & Co	*13 00	Samuel G. French	45 00
J. H. Walker	13 75	Class No. 23. Belting, packing, and hose:	
Class No. 11. Iron, iron spikes, and nails:		George H. Creed	153 00
David Babcock & Co	880 80	J. H. Walker	*144 60
W. A. Greenleaf	803 45	Class No. 24. Sperm and lubricating oils:	
Bellah, Quigley & Co.	*732 46	David Babcock & Co	*106 40
George H. Creed	770 30	James D. Peck, Treasurer ..	113 60
J. H. Walker	785 75	George H. Creed	106 40
M. Lissberger	†677 00	J. H. Walker	126 40
Class No. 12. Steel:		Class No. 25. Iron-work, piping, &c.:	
David Babcock & Co	152 00	H. J. Davidson	356 41
W. A. Greenleaf	153 00	George H. Creed	*303 40
Bellah, Quigley & Co.	*114 00	J. H. Walker	325 44
George H. Creed	132 00	Class No. 26. Augers:	
J. H. Walker	164 00	J. H. Walker	*11 10
Class No. 14. Files:		Class No. 27. Anthracite coal:	
H. H. Wright	80 71	David Babcock & Co	*2,338 00
W. A. Greenleaf	113 80	John Street & Co	2,557 50
James D. Peck, treasurer ..	88 40	George H. Creed	2,583 00
Bellah, Quigley & Co.	108 15	J. H. Walker	2,740 50
J. W. Gaskill & Sons	95 57	Samuel G. French	2,375 10

* Accepted.

† Received too late.

Abstract of offers received for furnishing materials for the navy-yard, League Island, Pa., under cognizance of the Bureau of Yards and Docks, for the fiscal year ending June 30, 1878.

Class No. 30. Semi-bituminous Broad Top coal:		March 29, 1878.—Class Nq. 18. Stationery:	
David Babcock.....	\$450 00	Walstrom & Stevens.....	\$16 30
J. H. Walker.....	*300 00	W. F. Murphy & Sons....	*15 90
Samuel G. French.....	337 50	Robert Burst & Co.....	
February 21, 1878.—Class No. 4. Lumber:		March 29, 1878.—Class No. 21. Provender:	
J. W. Gaskill & Sons	*92 50	Robert Burist, jr.....	35 00
E. B. Edwards.....	99 00	D. Landreth & Sons	*26 95
J. Warner & Co	95 80	P. B. Mingle & Co.....	31 25
February 21, 1878.—Class No. 15. Paints, oils, and glass:		April 24, 1878:	
United States White Lead Co	62 20	Paul J. Field.....	\$167 36
C. H. Howell.....	*57 50	J. B. Shannon.....	*163 16
W. Waterall & Co	59 60	J. Frank Gaskill	189 27
March 21, 1878.—Class No. 18. Stationery:		May 10, 1878.—Class No. 15. Paints, oils, &c.:	
W. F. Murphy & Sons	*15 40	C. H. Howell & Co.....	36 50
Walstrom & Stevens.....	16 30	B. H. Shoemaker.....	31 50
March 21, 1878.—Class No. 20. Hay and straw:		Ward & Co.....	36 00
D. Landreth & Sons	*22 50	May 10, 1878.—Class No. 17. Hardware:	
Robert Buist.....	35 00	Paul J. Field.....	*12 35
April 4, 1878.—Class No. 4. Lumber:		J. B. Shannon.....	12 98
J. W. Gaskill & Sons.....	*45 00	D. Landreth & Sons.....	21 20
E. B. Edwards.....	46 00	May 10, 1878.—Class No. 18. Stationery:	
April 18, 1878.—Class No. 17. Hardware:		J. E. Magee & Co	*10 96
J. B. Shannon & Son.....	*163 16	W. F. Murphy & Sons....	8 50
Paul J. Field	167 36	Malstrom & Stevens.....	15 50
J. F. Gaskill	189 27	May 18, 1878.—Class No. 17. Hardware:	
May 4, 1878.—Class No. 15. Paints, oils, and glass:		B. H. Shoemaker.....	42 04
C. H. Howell.....	36 50	J. B. Shannon & Sons....	*41 50
Ward & Co.....	36 00	Paul J. Field.....	42 50
B. H. Shoemaker & Son..	*31 50	June 29, 1878.—Class No. 4. Lumber:	
May 4, 1878.—Class No. 12. Hardware:		J. W. Gaskill & Sons.....	*200 00
Paul J. Field.....	*12 35	E. B. Edwards.....	240 00
J. B. Shannon & Sons	12 98	E. P. Moore	210 00
D. Landreth & Sons	21 20	June 29, 1878.—Class No. 15. Paints, oils, and glass:	
February 25, 1878.—Class No. 15. Paints, oils, and glass:		U. S. White Lead Co	34 46
United States White Lead Company.....	62 20	W. Waterall & Co	34 20
William Waterall & Co...	59 60	C. H. Howell & Co.....	*34 08
C. H. Howell & Co.....	*57 50	June 29, 1878.—Class No. 25. Iron-work, piping, &c.:	
February 25, 1878.—Class No. 5. Oak and hard wood:		Weaver & Pennock	105 33
J. W. Gaskill & Sons.....	*92 50	Brodie & Comfort.....	92 00
F. V. Warner & Co.....	95 80	C. A. Blessing	*70 00
E. B. Edwards & Co.....	99 00	June 29, 1878.—Class No. 11. Iron, iron nails, &c.:	
		Paul J. Field.....	*23 05
		J. B. Shannon & Sons....	24 05
		Noblitt, Brown, Noblitt & Co	

Abstract of offers received for furnishing materials, &c.—Continued.

May 10, 1878.—Class 15. Paints, oils, and glass:		September 2, 1878.—Class No. 4. Lumber:	
F. S. Pease.....	*\$48 00	Wessells, McClane & Co. . .	*\$590 30
E. S. Street.....	20 00	W. N. Shakespeare.....	757 00
A. T. Beam.....	42 00	J. W. Gaskill & Sons.....	621 25
August 12, 1878.—Class No. 23. Belting, packing, and hose:		A. Lewis & Co.....	770 00
Eureka Fire Hose Co.....	3,000 00	E. P. Burton.....	725 00
Walton Bros.....	2,850 00	R. S. McKay.....	906 00
R. Lerick Son & Co.....	*2,595 00	No name.....	805 00
August 12, 1878.—Class No. 5. Oak and hard wood:		September 2, 1878.—Class No. 5. Oak and hard wood:	
Francis Wessells.....	1,117 20	Wessells, McClane & Co. . .	1,484 75
Barrett, Garrison & Co.....	1,368 00	W. N. Shakespeare.....	1,738 00
J. W. Gaskill & Son.....	1,037 00	J. W. Gaskill & Sons.....	*1,421 50
J. and C. Stockham.....	*684 00	A. Lewis.....	2,040 00
August 12, 1878.—Class No. 4. Lumber:		E. P. Burton.....	1,815 00
J. W. Gaskill & Son.....	*4,100 86	R. S. McKay.....	2,343 00
J. and C. Stockham.....	5,125 00	No name.....	1,907 50
August 12, 1878.—Class No. 17. Hardware:		September 2, 1878.—Class No. 27. Coal:	
Paul J. Field.....	*63 00		Per ton.
J. F. Gaskill.....	68 00	W. P. Street.....	4 80
		Geo. B. Newton & Co.....	*4 65
		Campbell, Tucker & Co. . .	4 67

Scale of offers for supplies for the navy-yard, League Island, Pa., September 27, 1877.

Class No. 6. White-pine lumber:		Class No. 21—Continued.	
Watson & Pittinger.....	\$405 00	J. B. Canby.....	\$863 00
J. W. Gaskill & Sons.....	*263 50	Paul J. Field.....	903 00
Class No. 16. Ship-chandlery:		Class No. 23. Belting, packing, and hose:	
J. H. Walker.....	*775 65	J. H. Walker.....	*117 00
J. B. Shannon.....	801 23	J. B. Shannon.....	176 00
Paul J. Field.....	860 00	Paul J. Field.....	250 00
M. Lissberger.....	†535 55	M. Lissberger.....	†94 00
† Received too late.		Class No. 24½. Illuminating oils:	
Class No. 17. Hardware:		J. B. Shannon.....	300 00
J. H. Walker.....	659 78	Class No. 25. Iron-work, piping, &c.:	
J. B. Shannon.....	*598 65	J. H. Walker.....	148 65
Chas. J. Field.....	626 77	J. B. Shannon.....	*122 63
J. W. Gaskill & Son.....	695 45	J. W. Gaskill & Sons.....	147 22
Paul J. Field.....	716 64	M. Lissberger.....	†110 68
M. Lissberger.....	†352 84	Class No. 27. Anthracite coal:	
Class No. 18. Stationery:		A. A. McCullough.....	*2,725 00
W. H. Dempsey.....	*829 31	Samuel G. French.....	2,870 00
J. B. Shannon.....	852 03	John Street & Co.....	3,150 00
Class No. 20. Hay:		Class 29. Bituminous Cumberland coal:	
A. A. McCullough.....	590 00	A. A. McCullough.....	300 00
J. B. Shannon.....	599 40	Samuel G. French.....	300 00
Paul J. Field.....	560 00	John Street & Co.....	*237 50
Class No. 21. Provender:			
A. A. McCullough.....	41,907 50		
J. B. Shannon.....	*755 50		

* Accepted.

† Received too late.

Scale of offers for supplies for the Naval Asylum, Philadelphia, September 27, 1877.

Class No. 1. Clothing:		Class No. 8. Coal and wood:	
Wannamaker & Brown.....	*\$4,715 00	W. F. Moody.....	*\$1,604 00
Jacob Reed & Sons.....	4,838 80	Class No. 9. Paints, oils, and glass:	
Class No. 2. Boots and shoes:		J. B. Shannon.....	530 61
William McKnight.....	2,007 50	J. W. Gaskill & Sons.....	523 20
Wannamaker & Brown.....	1,856 25	Paul J. Field.....	560 35
Class No. 3. Provisions:		Bellah, Quigley & Co.....	*480 30
Joseph Comey & Sons.....	*8,289 00	Jos. D. Peck, president.....	545 51
Gottlieb Schiedt.....	9,880 20	William Waterall & Co....	493 00
John J. Griffith.....	9,848 20	Class No. 11. Lumber:	
Henry Jahke.....	9,334 50	Lemuel Bannister.....	661 50
Class No. 4. Groceries:		J. W. Gaskill & Sons.....	587 25
Samuel Hill.....	7,349 64	Class No. 13. Provender:	
Robert McKeown.....	*6,618 93	J. B. Shannon.....	*145 50
Class No. 5. Dry goods:		Paul J. Field.....	154 00
Wannamaker & Brown... ..	*613 53	Class No. 14. Miscellaneous:	
Paul J. Field.....	770 85	J. B. Shannon.....	1,407 17
Noblitt, Brown, Noblitt & Co.....	623 48	Paul J. Field.....	592 47
Class No. 6. Bread:		Noblitt, Brown, Noblitt & Co.....	*529 12
William Boschy.....	1,824 00	Class No. 15. Hardware:	
J. F. Widmayer.....	1,836 00	J. B. Shannon.....	259 39
Gustav Menzel.....	*1,409 00	Paul J. Field.....	259 57
John McIlwain.....	1,830 00	Noblitt, Brown, Noblitt & Co.....	*235 03
Lewis Ortman.....	1,636 00	Charles J. Field.....	262 27
Class No. 7. Tobacco:			
J. Rinaldo Sank & Co....	1,104 00		
Paul J. Field.....	*1,081 00		

Abstract of offers received for furnishing materials for navy-yard, Washington, D. C.

June 28, 1877.—Class No. 21. Provender:		Class No. 6—Continued.	
John A. Baker.....	\$1,485 90	A. A. McCullough.....	\$1,798 00
O. E. Hine.....	*1,420 00	W. W. McCullough.....	*1,382 90
J. D. Cumming.....	1,809 23	Thomas Banks & Co.....	1,558 65
A. E. Phillips.....	1,613 50	Austin P. Brown.....	1,815 00
September 8, 1877.—Class No. 17. Hardware:		Thomas P. Morgan.....	2,937 50
	Per lb.	H. W. Blunt.....	2,480 00
C. G. Schneider.....	03½	Class No. 17. Hardware:	
L. C. Campbell.....	*03	T. M. Shepherd.....	*116 02
Class No. 17. Hardware:		R. G. Campbell.....	133 55
L. H. Schneider.....	*\$41 00	Joseph L. Savage.....	120 45
C. G. Schneider.....	51 25	Class No. 17. Hardware:	
L. C. Campbell.....	45 25	R. G. Campbell.....	172 88
September 11, 1877.—Class No. 17. Hardware:		T. M. Shepherd.....	*107 95
Robert Boyd.....	*6 75	George W. Goodall.....	122 40
George P. Goff.....	10 40	Joseph L. Savage.....	114 95
October 4, 1877.—Class No. 8. Cement:		November 1, 1877.—Class No. 22. Charcoal:	
L. W. Guinand.....	*165 25		Per bu.
John Berry.....	262 10	B. Wayne.....	10 cts.
W. H. & E. H. Godey, ag'ts.	210 75	W. T. Clarke.....	10 cts.
Class No. 6. Lumber, &c.:		J. V. Trumbull.....	*9½ cts.
L. W. Guinand.....	1,384 10	December 15, 1877.—Class No. 3. Timber, &c.:	
			Lin. foot.
		W. W. McCullough.....	10 cts.
		Thomas Banks & Co.....	*8 cts.

*Accepted.

Abstract of offers received for furnishing materials, &c.—Continued.

February 16, 1878.—Class No. 3.

Timber, &c.:

	Per M. B. M.
E. W. Willis.....	\$20 00
Thomas Banks & Co.....	24 00
W. W. McCullough.....	* 30 00

April 6, 1878.—Class No. 29.

Cumberland coal:

	Per ton.
George Bogus.....	3 21
T. W. Riley & Sons.....	* 2 94
Stephenson Bros.....	2 99
Samuel Emery.....	3 20
L. W. Guinand.....	3 00
John Spencer.....	3 12
J. B. Cross.....	3 13

May 7, 1878.—Class No. 8. Cement:

W. Nottingham & Co.....	154 00
Acker & Co.....	208 00
L. W. Guinand.....	152 00
P. Maloney.....	*137 00

May 13, 1878.—Class No. 16.

Ship-chandlery:

B. Koch.....	111 00
J. S. Topham.....	77 50
Thos. Norfleet & Co.....	*71 50

May 18, 1878.—Class No. 6.

Lumber, &c.:

Willett & Libby.....	751 60
A. P. Brown.....	840 00
G. A. Shelhan.....	770 00
Cottrell Bros.....	902 00
T. B. Cross, jr.....	845 00
T. W. Smith.....	754 10
Windsor & Grayson.....	872 50
Smith & Wimsatt.....	730 50
W. W. McCullough.....	*726 00

May 24, 1878.—Class No. 8.

Stationery:

W. H. Dempsey.....	*237 55
Solomon & Chapman.....	263 44

May 29, 1878.—Class No. 25.

Iron-work, piping, &c.:

Reuter & Mallory.....	135 19
Austin P. Brown.....	183 78
George P. Goff.....	173 00
T. Somerville.....	164 19
T. M. Shepherd.....	168 68
R. Leitch & Sons.....	136 97

Class No. 25—Continued.

Walton Bros.....	\$651 74
H. Lissberger.....	*116 65

Class No. 21. Provender:

L. W. Guinand.....	90 35
A. P. Brown.....	92 00
Z. D. Gilman.....	77 30
F. Miller.....	81 60
H. Lissberger.....	*69 65

Class No. 15. Paints, oil, and glass:

F. O. Peirce & Co.....	840 53
George Ryneal.....	911 85
A. P. Brown.....	862 39
George P. Goff.....	872 16
Bellah Quigley & Co.....	842 12
Z. D. Gilman.....	834 29
T. M. Shepherd.....	910 98
J. H. Peake & Co.....	970 90
Francis Miller.....	866 94
Martin & Butler.....	859 66
Walton Bros.....	860 62
H. Lissberger.....	*825 45

Class No. 17. Hardware:

R. Boyd.....	258 85
A. P. Brown.....	*205 22
George P. Goff.....	269 91
C. Schneider.....	252 18
T. M. Shepherd.....	297 00
Walton Bros.....	337 74
H. Lissberger.....	232 00

May 24, 1878.—Class No. 17.

Hardware:

L. C. Campbell.....	307 41
L. H. Schneider.....	316 62
Geo. P. Goff.....	*301 83

Class No. 16. Ship-chandlery:

M. G. Copeland & Co.....	81 10
Hooe Bro. & Co.....	70 80

Class No. 17. Hardware:

Thompson & Co.....	20 75
S. H. Hopkin.....	*19 75
A. P. Brown.....	*324 19
A. W. Kennedy & Co.....	355 50

October 4, 1877.—Services for driving piles:

Thos. Banks & Co.....	*737 00
Thos. P. Morgan.....	1, 178 00

Abstract of materials for the Norfolk navy-yard for the fiscal year ending June 30, 1878.

July 10, 1877.—Class No. 20.

Hay and straw:

W. Schroeder.....	*\$426 75
C. A. Nash.....	437 45
Geo. Reid.....	437 50
A. A. McCullough.....	429 60

February 21, 1877.—Class No. 4.

Lumber:

A. A. McCullough.....	\$581 50
Peters Bros.....	604 00

*Abstract of materials for the Norfolk navy-yard, &c.—Continued.*June 24, 1877.—Class No. 15.
Paints, oils, and glass:

M. A. & C. A. Santos	*\$719 00
E. V. White & Co.	725 00
J. M. Butt	738 00

June 28, 1878.—Class No. 8.
Cement:

A. A. McCullough	*1 75
J. O. Gamage	1 85
H. P. Worcester	1 90

August 15, 1877.—Class No. 17.
Hardware:

Alexander & Powell	†60 00
J. R. Gillett	127 00
D. S. Cheny	130 00

August 15, 1877. Ship-chandlery:

H. Wertheimer	*108 00
S. A. Stevens & Co	110 00
J. Turnbull	†105 00

August 17, 1877.—Class No. 17.
Hardware:

D. S. Cheny & Co.	\$130 00
G. L. Crow	85 00
J. R. Gillett	127 00
Alexander & Powell	*60 00

August 17, 1877.—Class No. 16.
Ship chandlery:

S. S. Stevens	110 00
H. Wertheimer	*108 00
Jno. Trumbull	†99 00
W. B. Moses	120 00

October 15, 1877.—Class No 17.
Hardware:

Geo. L. Crow	*14 00
J. R. Gillett	17 75

September 1, 1877.—Class No.
17. Hardware:

Taylor, Elliot, & Watters ..	*22 00
E. V. White & Co	26 50

*Scale of offers for supplies for the navy-yard, Norfolk, Va., September 27, 1877.*Class No. 4. Yellow pine lum-
ber:

R. J. Nealley	\$1,475 00
J. W. Gaskill & Sons	1,673 75
Peters Bros	1,746 25
A. McCullough	*1,368 00
Watson & Pittinger	1,965 00

Class No. 5. Oak and hard
wood:

R. J. Nealley	*384 40
A. A. McCullough	393 50
Watson & Pittinger	537 90

Class No. 6. Whitepine, spruce,
juniper, and cypress:

R. J. Nealley	182 50
J. W. Gaskill & Sons	197 50
A. A. McCullough	*182 00
Watson & Pittinger	330 00

Class No. 7. Lime, hair, and
plaster:

J. H. Walker	170 00
Peters Bros	121 80
A. A. McCullough	*114 20

Class No. 8. Cement:

J. H. Walker	119 70
Peters Bros	135 45
David Babcock & Co	*113 40
A. A. McCullough	124 74

Class No. 10. Slate:

J. H. Walker	*399 80
David Babcock & Co	612 50
A. A. McCullough	512 50

Class No 11. Iron, iron nails,
and spikes.

J. H. Walker	\$357 23
J. W. Gaskill & Sons	352 49
E. V. White & Co	362 49
Bellah, Quigly & Co	*339 41

Class No. 12. Steel:

J. H. Walker	17 25
E. V. White & Co	7 13
Bellah, Quigly & Co	*5 25

Class No. 14. Files:

J. H. Walker	*46 40
J. W. Gaskill & Sons	64 46
E. V. White & Co	69 74
C. H. Wight	52 07

Class No. 15. Paints, oils, and
glass:

J. H. Walker	943 89
J. W. Gaskill & Sons	961 61
E. F. Holbrook & Co	†227 15
E. V. White & Co	1,087 43
Bellah, Quigley & Co	*927 20

Class No. 16. Ship chandlery:

J. H. Walker	*338 02
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Class No. 17. Hardware:

J. H. Walker	*728 06
J. W. Gaskill & Sons	772 48
Bellah, Quigley & Co	803 93

Class No. 18. Stationery:

W. H. Dempsey	*209 77
Arthur & Bonnell	256 30

* Accepted.

† Informal.

Scale of offers for supplies for the navy-yard, Norfolk, Va., &c.—Continued.

Class No. 20. Hay and straw:		Class No. 25. Iron-work, piping, &c.:	
R. J. Nealley	\$1,768 80	J. H. Walker	*\$114 82
Peters Bros	*1,533 80	J. W. Gaskill & Sons	135 31
A. A. McCullough	1,550 00	E. V. White & Co	118 26
Wm. Schroeder	1,630 50		
Class No. 21. Provender:		Class No. 26. Augers:	
R. J. Nealley	1,547 50	J. H. Walker	*22 78
Peters Bros	*1,490 00	J. W. Gaskill & Sons	37 98
A. A. McCullough	1,579 40	E. V. White & Co	31 05
W. Schroeder	1,503 00		
Class No. 23. Bolting, packing, and hose:		Class No. 31. Copper and composition nails:	
J. H. Walker	*263 20	J. H. Walker	1,074 00
E. V. White & Co	365 60	J. W. Gaskill & Son	927 20
Class No. 24. Sperm and lubricating oil:		E. V. White & Co	*875 50
J. H. Walker	124 00	David Babcock & Co	926 00
E. V. White & Co	123 20		
David Babcock & Co	*115 20	Class No. 32. Machinery and tools:	
		J. H. Walker	203 77

Scale of offers for supplies for the Navy-Yard, Pensacola, Fla., September 27, 1877.

Class No. 6. White pine, spruce, juniper, and cypress:		Class No. 16—Continued.	
George H. O'Neal	*\$90 00	C. McKenzie Oerting	\$345 15
J. O. Neal	120 00		
Class No. 7. Lime, hair, and plaster:		Class No. 17. Hardware:	
George H. O'Neal	115 00	J. O. Neal	430 40
M. Triestra	*74 00	C. McKenzie Oerting	*369 19
J. O. Neal	100 00		
Class No. 11. Iron, iron spikes, and nails:		Class No. 18. Stationery:	
George H. O'Neal	185 00	W. H. Dempsey	*235 82
M. Triestra	139 00	Arthur & Bonnell	357 19
J. O. Neal	155 00	George W. Turton	356 11
C. McKenzie Oerting	*132 00	Gamaliel Bell	336 34
Class No. 14. Files:		Class No. 20. Hay:	
George H. O'Neal	47 00	George H. O'Neal	*470 40
M. Triestra	*22 50	M. Triestra	480 00
J. O. Neal	60 00	J. O. Neal	544 00
C. McKenzie Oerting	28 40		
Class No. 15. Paints, oils, and glass:		Class No. 21. Provender:	
James D. Peck, President	1,404 85	George H. O'Neal	891 00
Samuel M. Todd	*1,383 50	M. Triestra	*687 50
M. Triestra	1,653 75	J. O. Neal	700 00
J. O. Neal	1,676 00		
C. McKenzie Oerting	1,569 75	Class No. 24. Sperm and lubricating oil:	
Class No. 16. Ship chandlery:		George H. O'Neal	642 00
J. O. Neal	361 25	James D. Peck, Treasurer	*404 00
		M. Triestra	502 00
		J. O. Neal	516 00
		C. McKenzie Oerting	462 00
		Class No. 32. Machinery and tools:	
		J. O. Neal	37 50
		C. McKenzie Oerting	*16 60

*Accepted.

Abstract of offers for removing floating gate and cleaning out dock-basin at Pensacola, Fla., dated June 10, 1878.

Francis Walsh.....	\$3,650 00	S. S. Haney.....	1,760 00
J. O. Neal.....	1,150 00	W. E. Anderson.....	2,875 00
Samuel Glass.....	2,500 00	Hugh McHatten.....	1,340 00
S. C. Cobb.....	2,750 00	W. Hughes.....	*925 00
George W. Le Gallais.....	2,400 00	Jasper Gonzales.....	1,700 00
G. E. Wentworth.....	4,183 00		

Abstract of offers for furnishing supplies for the navy-yard, Pensacola, Fla., for the fiscal year ending June 30, 1878.

April 18, 1878.—Class No. 17. Hardware:

McKenzie, Oerting & Co.....	*\$17 25	J. O. Neal.....	\$22 50
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April 18, 1878.—Class No. 15. Paints, oils, and glass:

McKenzie, Oerting & Co....	*43 50	J. O. Neal.....	44 00
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Abstract of offers for furnishing supplies for the navy-yard, Mare Island, Cal., for the fiscal year ending June 30, 1878.

September 15, 1877.—Class No. 15. Paints, oils, and glass:

A. C. Dietz & Co.....	*\$944 50	Sullivan, Kelly & Co.....	\$972 00
Whittier, Fuller & Co.....	948 00		

Scale of offers for supplies for the navy-yard, Mare Island, Cal., September 27, 1877.

Class No. 1. Bricks:

W. Walker.....	\$410 00
A. Powell.....	475 00
F. B. Taylor.....	*402 56

Class No. 3. Oregon pine timber:

A. Powell.....	\$110 00
James & Abbott.....	110 00
G. A. Meigs, president.....	*100 00

Class No. 4. Oregon pine lumber:

W. Walker.....	\$461 00
A. Powell.....	399 00
James & Abbott.....	420 00
G. A. Meigs, president.....	*322 00

Class No. 6. White pine and redwood:

W. Walker.....	\$1,190 50
A. Powell.....	906 50
James and Abbott.....	965 95
G. A. Meigs, president.....	*778 25

Class No. 7. Lime, hair and plaster:

W. Walker.....	16 00
A. Powell.....	15 00
James E. Gordon.....	*7 00

Class No. 8. Cement:

W. Walker.....	\$150 00
A. Powell.....	135 00
F. B. Taylor.....	111 25
James E. Gordon.....	*105 00

Class No. 11. Iron, iron spikes and nails:

J. H. Walker.....	352 50
James E. Gordon.....	*186 00

Class No. 14. Files:

J. H. Walker.....	*171 26
C. H. Wight.....	189 89
James E. Gordon.....	201 61

Class No. 15. Paints, oils, and glass:

J. H. Walker.....	1,165 10
Whittier, Fuller & Co.....	1,041 65

Class No. 16. Ship chandlery:

J. H. Walker.....	406 15
James E. Gordon.....	*362 91

Class No. 17. Hardware:

J. H. Walker.....	1,018 43
James E. Gordon.....	*709 16

* Accepted.

Scale of offers for supplies for the navy-yard, Mare Island, Cal., &c.—Continued.

Class No. 18. Stationery:		Class No. 24. Sperm and lubri-	
W. H. Dempsey.....	\$284 45	cating oils:	
L. H. Bonestell.....	*270 38	F. B. Taylor.....	*\$4,792 00
Class No. 22. Charcoal:		V. G. Schofield.....	5,002 00
W. Walker.....	*140 00	Class No. 25. Iron-work, pip-	
A. Powell.....	250 00	ing, &c.:	
Jas. McCudden.....	180 00	J. H. Walker.....	*246 23
James E. Gordon.....	150 00	Class No. 29. Coal:	
Class No. 23. Belting, packing,		W. Walker.....	2,100 00
and hose:		A. Powell.....	2,075 00
J. H. Walker.....	210 00	Jas. McCudden.....	*1,929 20
James E. Gordon.....	*169 00		

* Accepted.

No. 7.

BUREAU OF MEDICINE AND SURGERY.

NAVY DEPARTMENT, BUREAU OF MEDICINE AND SURGERY, Oct. 29, 1878.

SIR: In compliance with your order of the 21st instant, I have the honor to submit the annual report of this bureau, with estimates for the support of the medical department of the Navy for the fiscal year ending June 30, 1880. The usual statistics, and a statistical report of the health of the Navy, for the year ending December 31, 1877, are appended. The general health of the Navy has been good, yet from some unknown cause a slight increase in the percentage of sickness as compared with the previous year is apparent. The increased death-rate is due to the loss of the Huron.

The various squadrons, stations, and hospitals have been amply supplied with everything essential for the care and treatment of the sick, and the officers under whose care the sick of the Navy have been placed have performed their duties to the satisfaction of the bureau.

The requirements of the several hospitals were fully represented in the last annual report, and I am pleased to report that a more liberal appropriation by Congress has enabled the bureau to make many needed repairs. At the hospital at Norfolk, so important and so long neglected, some improvements can be made. Drawings and specifications for heating this institution by steam are now before the bureau.

The hospital at Annapolis, as required by the act of May 4, 1878, has been closed, and arrangements are now being made to transfer the furniture to Norfolk and other hospitals. Sufficient furniture, however, will be retained at Annapolis to accommodate the sick, should an unexpected development of disease occur.

NAVAL HOSPITAL FUND.

The condition of this fund is as follows:

Balance on hand October 1, 1877.....	\$860 82
Transferred to the credit of the fund in settlement of accounts by the Fourth Auditor, from October 1, 1877, to October 1, 1878.....	77,327 20
Credited by appropriation for the fiscal year ending June 30, 1879.....	50,000 00
Total.....	128,188 02
Deduct amounts expended from October 1, 1877, to October 1, 1878.....	80,441 77
Balance on hand October 1, 1878.....	47,746 25

As you are aware, the support of the hospital establishment depends upon this fund, and that it requires about \$100,000 annually to maintain it in its present state. From \$30,000 to \$40,000 have been received annually from the officers and men of the Navy, as provided in sections 1614 and 4812 of the Revised Statutes; consequently an appropriation under the above head of at least \$60,000 will hereafter be required.

ASSISTANT SURGEONS.

At present six vacancies exist in the list of assistant surgeons, the increase over the previous year being due to deaths. The board for the examination of candidates for admission into the Medical Corps has been continuously in session during many years, but as yet has not been able to recommend the number of qualified candidates allowed by law. It is hoped, however, that within another year the corps will be complete, as superior applicants are more frequent than in former years; the result of a higher standard of medical education throughout the country.

There are at present 21 acting assistant surgeons in the service, 5 of whom are employed. As recommended in your last annual report to Congress, under "Volunteer assistant surgeons," the services of this class of officers can be dispensed with. In accordance with your recommendation upon this subject, the House of Representatives was pleased to pass "A bill to abolish the Volunteer Navy."

APOTHECARIES.

The House of Representatives, at its last session, was also pleased to pass a bill entitled "An act to authorize the appointment of apothecaries as warrant-officers in the United States Navy." Your attention is specially invited to this bill, as its approval by the Senate is earnestly desired by the bureau. Should it become a law, great benefit to the service will result.

I am pleased to announce that the instruction afforded to assistant surgeons previous to their examination for promotion at the Naval Hospital, New York, inaugurated by my predecessor, has been in every regard highly beneficial to the interests of the service, and reflects great credit upon its originator, as also upon those engaged as instructors.

The Book of Instructions for Medical Officers, referred to in the last annual report of this bureau, is now ready for distribution, with such changes as have become necessary since the last issue in 1873.

A second number of Medical and Sanitary Reports (1875 to 1878) was in course of preparation when the act forbidding publications without authority of Congress was passed. This work, as you are aware, consists of the reports of medical officers, at home and abroad, on subjects of deep interest to the Navy and the profession at large. In anticipation of its publication, the bureau is constantly in receipt of communications from the profession and others, requesting copies, which is in itself evidence of its importance and value.

A report of surgical casualties in the Navy from 1860 to 1870, prepared with labor and expense, remains unpublished. It contains a vast amount of experience, and would be of value to the Navy and profession. Your assistance to procure the necessary legislation to enable the bureau to publish this and the preceding work is earnestly solicited.

The atmospheric observations on board our vessels of war, referred to in last report, are now in successful operation, and form a part of the regular reports to this bureau required of medical officers. At a later period it is probable a special report will be made to you upon this subject.

The number of letters from the Hon. Commissioner of Pensions, addressed to this bureau, increases with each year, and this leads me to invite attention to a bill introduced in the House of Representatives March 11, 1876 (2590). Its provisions, as amended by its author, are briefly as follows: That the Bureau of Pensions shall be transferred from the Department of the Interior to the Departments of War and Navy, respectively, and that the duties now performed by the Commissioner of Pensions, so far as relates to the Navy, shall be performed by the Chief of Bureau of Medicine.

This bill appears to the bureau to be alike in the interest of the government and pensioner. It would obviate the delay now unavoidable in the preparation of records for the Commissioner, assist the deserving claimant, and enable the department to promptly dispose of undeserving and fraudulent claims. The Bureaus of Navigation, Equipment and Recruiting, and Medicine and Surgery, contain all the information on file, and should additional evidence at any time be required, it could be promptly obtained by the department from its officers ashore or afloat.

The bill further provides that all examinations shall be made by medical officers of the Navy, and that all payments shall be made by pay-officers of the same service. That this system would not only insure fidelity and efficiency, but the saving to the government annually of large sums of money, must be apparent.

It is hoped your views on this subject may accord with those of the bureau, and that the attention of Congress will be called to it at an early day.

Very respectfully, your obedient servant,

J. WINTHROP TAYLOR,

Surgeon-General, U. S. N.

Hon. R. W. THOMPSON,
Secretary of the Navy.

*Estimates of appropriations required for the service of the fiscal year ending June 30, 1880
by the Bureau of Medicine and Surgery.*

Detailed objects of expenditure and explanations.	Estimated amount which will be re- quired for each detailed object of expenditure.	Amount appropri- ated for the cur- rent fiscal year ending June 30, 1879.
SALARIES.		
For one chief clerk, per act June 19, 1878 (20 Stat. at L., p. 198, sec. 2; Rev. Stats., p. 70, sec. 416)	\$1,800 00	
For one clerk class three, per act June 19, 1878 (20 Stat. at L., p. 198, sec. 2; Rev. Stats., p. 26, sec. 167)	1,600 00	
For one clerk, per act June 19, 1878 (20 Stat. at L., p. 198, sec. 2)	1,000 00	
For one assistant messenger, per act June 19, 1878 (20 Stat. at L., p. 198, sec. 2)	720 00	
For one laborer, per act June 19, 1878 (20 Stat. at L., p. 198, sec. 2)	640 00	
	5,760 00	\$5,760 00
CONTINGENT EXPENSES.		
For stationery and miscellaneous items	100 00	100 00
MEDICAL DEPARTMENT.		
For support of the medical department, for surgeons' necessities for vessels in commission, navy-yards, naval stations, Marine Corps, and Coast Survey (appropriated May 4, 1878, 20 Stat. at L., p. 53, sec. 1)	45,000 00	45,000 00
NAVAL HOSPITAL FUND.		
For maintenance of the naval hospitals at Portsmouth, N. H.; Chelsea, Mass.; Brooklyn, N. Y.; Philadelphia, Pa.; Annapolis, Md.; Washington, D. C.; Norfolk, Va.; Pensacola, Fla.; Mare Island, Cal., and Yokohama, Japan (appropriated May 4, 1878, 20 Stat. at L., p. 53, sec. 1)	50,000 00	50,000 00
CONTINGENT.		
For contingent expenses of the bureau, for freight on medical stores, transportation of insane patients to the government hospital, advertising, telegraphing, purchase of books, expenses attending the medical board of examiners, purchase and repair of wagons, harness; purchase and feed of horses, cows; trees, garden tools and seeds (appropriated May 4, 1878, 20 Stat. at L., p. 53, sec. 1)	15,000 00	15,000 00
REPAIRS OF HOSPITALS, ETC.		
For repairs to naval laboratory, naval hospitals and appendages, including roads, wharves, outhouses, sidewalks, fences, gardens, farms, cemeteries &c. (appropriated May 4, 1878, 20 Stat. at L., p. 53, sec. 1)	30,000 00	30,000 00
CIVIL ESTABLISHMENT OF HOSPITALS AND YARDS.		
For pay of employés at the several naval hospitals, navy-yards, naval laboratory, and Naval Academy, under the cognizance of the Bureau of Medicine and Surgery (appropriated May 4, 1878, 20 Stat. at L., p. 53, sec. 1)	40,000 00	40,000 00
RECAPITULATION.		
Medical department	45,000 00	45,000 00
Naval hospital fund	50,000 00	50,000 00
Contingent	15,000 00	15,000 00
Repairs of hospitals, &c.	30,000 00	30,000 00
Civil establishment of hospitals and yards	40,000 00	40,000 00
	180,000 00	180,000 00

STATISTICAL REPORT ON THE HEALTH OF THE NAVY, &c., FOR THE YEAR 1877.

NORTH ATLANTIC STATION.

The North Atlantic Station has the following geographical limits, viz: Within the latitudes of the banks of Newfoundland and the mouth of the Amazon River, embracing the longitudes of the Western and Madeira Islands.

The following vessels were employed on this station during the year 1877: Powhatan (as flag-ship), Plymouth, Ossipee, Swatara, Essex, Huron, Enterprise, New Hampshire, Canonicus, Manhattan, Wyandotte, Ajax, Catskill, Lehigh, Passaic, Saugus, Mahopac, Dictator, Shawmut, Pawnee, Montauk, and Fortune.

The ensuing tables present the groups of diseases and the cyclical changes in disease movement, as well as the aggregate of classified diseases, during each quarter and for the year.

During the first quarter diseases of the respiratory system were first in the order of frequency, declining until the third quarter, when they rise.

Diseases of the digestive system were next in order in frequency during the first quarter, and rise during the second, only to fall in the fourth quarter. Miasmatic diseases were third in the order of frequency, and fall in the second quarter, to rise in the third and fourth.

The class of wound injuries and accidents during the year is very much increased by reason of the loss of the greater portion of the crew of the Huron on the 24th November, 1877.

The aggregate report on inspection will exhibit the most frequently recurring forms of disease on this station during the year.

The deaths were: from erysipelas, 1; anæmia, 1; typhoid-pneumonia, 1; submersion, 100. This includes the 98 lost on the Huron.

On board the Essex one case of *filaria medinensis* was reported. It is mentioned on account of the rare occurrence in our service.

The health statistics of each vessel for the year are also appended. The statistics, carefully kept, become of value in determining the health and sick rates of the various kinds and classes of vessels composing our Navy under different climatic conditions.

No epidemic occurred during the year, but the sick-rate has increased over that of 1876.

These statistics, with the more carefully recorded meteorological observations conducted by the bureau, may in the future determine some of the causes of the high sick rate of the maritime community.

Most of the iron-clads were not fully manned for active service, and not therefore engaged as cruisers.

First quarter, 1877. North Atlantic Station.

[Aggregate: Total number of ships' companies, 1,788; total number of sick-days, 2,940; deaths, 2.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	1	38	35	.....	4	.....	.....
Enthetic	6	20	19	1	4	.....	2
Dietic .....	.....	2	2	.....	.....	.....	.....
Diathetic	3	28	22	.....	8	.....	1
Developmental .....	.....	.....	.....	.....	.....	.....	.....
Tubercular .....	.....	1	.....	.....	1	.....	.....
Parasitic .....	.....	.....	.....	.....	.....	.....	.....
Of the nervous system	4	6	9	.....	1	.....	.....
eye .....	.....	7	4	.....	.....	.....	3
ear .....	.....	1	1	.....	.....	.....	.....
teeth .....	.....	.....	.....	.....	.....	.....	.....
circulatory system .....	.....	2	.....	.....	.....	1	1
respiratory system	3	53	40	.....	9	.....	7
digestive system	1	43	36	.....	4	.....	4
urinary and genital system .....	.....	8	2	.....	1	.....	.....
locomotive system	1	2	.....	.....	2	.....	1
integumentary system	2	36	33	.....	.....	.....	5
Non-malignant tumors and cysts .....	.....	.....	.....	.....	.....	.....	.....
Wounds, injuries, and accidents	5	58	48	.....	5	1	9
Total	26	300	251	1	39	*2	33

* 1 anemia; 1 drowning.

Second quarter, 1877. North Atlantic Station.

[Aggregate: Total number of ships' companies, 1,709; total number of sick-days, 2,996; deaths, 2.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic .....	.....	34	31	.....	1	.....	2
Enthetic	2	13	13	.....	1	.....	1
Dietic .....	.....	.....	.....	.....	.....	.....	.....
Diathetic	1	24	14	.....	8	.....	3
Developmental .....	.....	.....	.....	.....	.....	.....	.....
Tubercular .....	.....	.....	.....	.....	.....	.....	.....
Parasitic .....	.....	1	1	.....	.....	.....	.....
Of the nervous system .....	.....	16	15	.....	1	.....	.....
eye	3	1	4	.....	.....	.....	.....
ear .....	.....	.....	.....	.....	.....	.....	.....
teeth .....	.....	.....	.....	.....	.....	.....	.....
circulatory system .....	.....	2	.....	.....	1	.....	.....
respiratory system	7	41	36	.....	6	1	6
digestive system	4	49	42	.....	2	.....	5
urinary and genital system .....	.....	9	6	.....	2	.....	1
locomotive system	1	7	4	.....	3	.....	1
integumentary system	5	37	35	.....	1	.....	6
Non-malignant tumors and cysts .....	.....	.....	.....	.....	.....	.....	.....
Wounds, injuries, and accidents	9	63	63	1	6	1	1
Total	33	297	266	1	35	*2	28

* 1 typhoid-pneumonia; 1 drowning.

Third quarter, 1877. North Atlantic Station.

[Aggregate: Total number of ships' companies, 1,700; total number of sick-days, 2,346; deaths, 1.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	2	42	33		4	1	6
Enthetic	1	28	24		3		2
Dietic		7	7				
Diathetic	3	16	8	1	10		
Developmental							
Tubercular		1			1		
Parasitic							
Of the nervous system		11	8		3		
eye		6	3		3		
ear		3	2		1		
teeth							
circulatory system		11	2		9		
respiratory system	6	12	7	2	9		
digestive system	5	55	44	1	12		3
urinary and genital system	1	11	3		9		
locomotive system	1	1	1		1		
integumentary system	6	20	20		6		
Non-malignant tumors and cysts		1	1				
Wounds, injuries, and accidents	1	42	31	1	8		3
Total	26	267	194	5	79	*1	14

*1 Erysipelas.

Fourth quarter, 1877. North Atlantic Station.

[Aggregate: Total number of ships' companies, 1,860; total number of sick-days, 2,229; deaths, 98.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	6	51	46		7		4
Enthetic	2	49	35		13		3
Dietic		5	5				
Diathetic		15	8		5		2
Developmental							
Tubercular							
Parasitic		1	1				
Of the nervous system		8	5		2		
eye		3	2				1
ear		1	1				
teeth		1	1				
circulatory system		2			2		
respiratory system		16	8		3		1
digestive system	3	25	25		2		
urinary and genital system							
locomotive system							
integumentary system		21	14	1	6		
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	3	152	47		8	98	2
Total	14	360	203	1	57	*98	13

* Drowned—Huron.

North Atlantic Station.

AGGREGATE, 1877.

[Average number of ships' companies, 1,764 + ; total sick-days, 10,511; deaths, 103; ratio per thousand of cases treated to effectives, 708 + ; ratio per thousand of cases treated to effectives, 532 in 1876.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	1	165	145		16	1	4
Enthetic	6	110	91	1	21		3
Dietic		14	14				
Diathetic	3	83	52	1	81		2
Developmental							
Tubercular		2			2		
Parasitic		2	2				
Of the nervous system	4	41	37		8		
eye		17	13		3		1
ear		5	4		1		
teeth		1	1				
circulatory system		17	4		12	1	
respiratory system	3	122	91	2	30	1	1
digestive system	1	172	147	1	25		
urinary and genital system		33	18		15		
locomotive system	1	10	5		6		
integumentary system	2	114	102	1	13		
Non-malignant tumors and cysts		1	1				
Wounds, injuries, and accidents	5	315	189	2	27	100	2
Total	26	1,224	916	8	210	103	13

Powhatan, flag-ship, 2d rate. Wood; paddle; 2,182 tons.

[Employed during the year as flag-ship of the North Atlantic Station. Average number of ship's company, 266 + ; total sick-days, 2,764; deaths, 1; ratio per thousand of cases treated to effectives, 953 + ; ratio per thousand of cases treated to effectives in 1876, 920 +.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		37	34		3		
Enthetic	2	29	25	1	3		2
Dietic		1	1				
Diathetic	1	14	9		6		
Developmental							
Tubercular							
Parasitic							
Of the nervous system		4	3		1		
eye		6	5				1
ear		2	2				
teeth							
circulatory system		2	1		1		
respiratory system	2	33	28		7		
digestive system		32	29		3		
urinary and genital system		4	2		2		
locomotive system		2	2				
integumentary system	1	19	17		3		
Non-malignant tumors and cysts							
Wounds, injuries, and accidents		65	56	1	7	1	
Total	6	250	214	2	36	*1	3

* Drowning.

Plymouth, 2d rate. Wood; screw; 1,122 tons.

[Employed during the year on the North Atlantic Station. Average number of ship's company, 231+; total sick-days, 1,489; deaths, 1; ratio per thousand of cases treated to effectives, 854+; ratio per thousand of cases treated to effectives in 1876, 845+.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	1	22	16		4		3
Enthetic		13	6		7		
Dietic		1	1				
Diathetic	1	10	8		3		
Developmental							
Tubercular							
Parasitic							
Of the nervous system		9	9				
eye		1	1				
ear		1			1		
teeth		1	1				
circulatory system		6	5			*1	
respiratory system		34	28		6		
digestive system		24	21		3		
urinary and genital system		3	1		2		
locomotive system		1			1		
integumentary system		32	32		1		
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	1	44	40		5		
Total	3	202	164		37	1	3

*Anæmia.

Ossipee, 3d rate. Wood; screw; 828 tons.

[Employed during the year on the North Atlantic Station. Average number of ship's company, 294+; total sick-days, 781; deaths, 2; ratio per thousand of cases treated to effectives, 444+; ratio per thousand of cases treated to effectives, 1876, 1,015+.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		9	6		2	1	
Enthetic	1	7	5		3		
Dietic							
Diathetic		5	3		2		
Developmental							
Tubercular							
Parasitic							
Of the nervous system		2			2		
eye		1	1				
ear		1	1				
teeth							
circulatory system		2	1		1		
respiratory system		14	8		5	1	
digestive system	1	8	5		4		
urinary and genital system		5	3		2		
locomotive system		3	2		1		
integumentary system		13	12		1		
Non-malignant tumors and cysts							
Wounds, injuries, and accidents		19	17		2		
Total	2	89	64		25	*2	

*Erysipelas and typhoid-pneumonia.

Swatara, 3d rate. Wood; screw; 910 tons.

[Employed during the year on the North Atlantic Station. Average number of ship's company, 186; total sick-days, 1,498; deaths, 0; ratio per thousand of cases treated to effectives, 865 +; ratio per thousand of cases treated to effectives, 1876, 1,261 +.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		22	16		6		
Enthetic	1	9	8		2		
Dietic		1	1				
Diathetic		13	8		5		
Developmental							
Tubercular							
Parasitic		1	1				
Of the nervous system		6	5		1		
eye		1			1		
ear							
teeth							
circulatory system		2			2		
respiratory system	1	8	5		4		
digestive system		45	38	1	6		
urinary and genital system		3	1		2		
locomotive system							
integumentary system	1	16	16		1		
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	1	30	25	1	4		1
Total	4	157	124	2	34		1

Essex, 3d rate. Wood; screw; 615 tons.

[Employed during the year at Vera Cruz, Norfolk, at sea, and at St. Helena. Average number of ship's company, 180; total sick-days, 769; deaths, 0; ratio per thousand of cases treated to effectives, 472 +; ratio per thousand of cases treated to effectives, 1876, 144 +.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		26	25				1
Enthetic	1	5	5		1		
Dietic		2	2				
Diathetic		5	2		2		1
Developmental							
Tubercular							
Parasitic		1	1				
Of the nervous system	1	1			2		
eye							
ear							
teeth							
circulatory system							
respiratory system		12	8		3		1
digestive system		16	15		1		
urinary and genital system		2	1		1		
locomotive system	1	1			2		
integumentary system		4	3		1		
Non-malignant tumors and cysts							
Wounds, injuries, and accidents		7	6		1		
Total	3	82	68		14		3

Huron, 3d rate. Iron; screw; 541 tons.

[Employed for 328 days of the year on the North Atlantic Station. Was wrecked November 24, 1877, on the coast of North Carolina. Average ship's company, 128½. Total sick days, 699—includes all returns received. Deaths, 98.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		9	9				
Enthetic		5	5				
Dietic							
Diathetic		7	7				
Developmental							
Tubercular		2			2		
Parasitic							
Of the nervous system		6	6				
eye							
ear							
teeth							
circulatory system		1	1				
respiratory system		6	5		1		
digestive system		6	8		1		
urinary and genital system		2	2				
locomotive system							
integumentary system		5	5				
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	2	110	14			98	
Total	2	162	62		4	*98	

* Drowned.

Enterprise, 3d rate. Screw; 615 tons.

[Employed for 290 days in 1877 on the North Atlantic Station. Average number of ship's company, 159. Total sick-days, 345. Deaths, 0. Ratio per thousand of cases treated to effectives, 308+.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		4	4				
Enthetic		5	5				
Dietic		2	2				
Diathetic		5	5		2		
Developmental							
Tubercular							
Parasitic							
Of the nervous system		3	2		1		
eye		2	1		1		
ear							
teeth							
circulatory system			1				
respiratory system		2	1		1		
digestive system		3	2		1		
urinary and genital system		4	2		2		
locomotive system							
integumentary system		5	2	1	2		
Non-malignant tumors and cysts							
Wounds, injuries, and accidents		14	11		3		
Total		49	35	1	13		

New Hampshire, 2d rate. Wood; sails; 2,600 tons.

[During the year was stationed at Port Royal, S. C. Average number of ship's company, 114 +; total sick-days, 395; deaths, 0. Ratio per thousand of cases treated to effectives, 332 +; ratio per thousand of cases treated to effectives, 1878, 359 +.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		3	3				
Enthetic		3	3				
Dietic							
Diathetic		4	2		2		
Developmental							
Tubercular							
Parasitic							
Of the nervous system	1	3	4				
eye		3	3				
ear							
teeth							
circulatory system		2	1		1		
respiratory system							
digestive system		7	6		1		
urinary and genital system		5	5		1		
locomotive system		1	1				
integumentary system		1	1				
Non-malignant tumors and cysts		1	1				
Wounds, injuries, and accidents		4	3				1
Total	1	37	33		4		1

Canonius, 4th rate. Iron-clad; screw; 550 tons.

[Employed during the year on the North Atlantic Station at New Orleans, La. Average number of ship's company, 90; total sick-days, 1,018; deaths, 0. Ratio per thousand of cases treated to effectives, 1,155; ratio per thousand of cases treated to effectives, 1876, 930 +.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		23	18				
Enthetic		13	13				
Dietic		1	1				
Diathetic		10	7	1	2		
Developmental							
Tubercular							
Parasitic							
Of the nervous system		7	7				
eye							
ear							
teeth							
circulatory system							
respiratory system		6	4	2			
digestive system		23	21		2		
urinary and genital system							
locomotive system		1			1		
integumentary system		4	3				
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	1	10	9		2		
Total	1	103	93	3	8		

Manhattan, 4th rate. Iron-clad; screw; 550 tons.

[Employed during the first, second, and third quarters, 1877, on the North Atlantic Station, at Port Royal, Savannah, and Norfolk. Average number of ship's company, 21+ (273 days); total sick-days, 21; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		1	1				
Enthetic		1	1				
Dietic							
Diathetic							
Developmental							
Tubercular							
Parasitic							
Of the nervous system							
eye							
ear							
teeth							
circulatory system							
respiratory system							
digestive system		2			2		
urinary and genital system							
locomotive system							
integumentary system							
Non-malignant tumors and cysts		1	1				
Wounds, injuries, and accidents							
Total		5	3		2		

Wyandotte, 4th rate. Iron-clad; screw; 550 tons.

[Employed during the year on the North Atlantic Station. Average number of ship's company, 246+; total sick-days, 65; deaths, 0; ratio per thousand of cases treated to effectives, 408+; ratio per thousand of cases treated to effectives, 1876, 233+.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		1	1				
Enthetic		4	2		2		
Dietic							
Diathetic		2	1		1		
Developmental							
Tubercular							
Parasitic							
Of the nervous system							
eye		1	1				
ear							
teeth							
circulatory system							
respiratory system		1			1		
digestive system							
urinary and genital system							
locomotive system							
integumentary system							
Non-malignant tumors and cysts		1	1				
Wounds, injuries, and accidents							
Total		10	6		4		

Ajax, 4th rate. Iron-clad; screw; 550 tons.

[Employed during the year on the North Atlantic Station. Average number of ship's company, 44 + total sick-days, 198; deaths, 1; ratio per thousand of cases treated to effectives, 359+; ratio per thousand of cases treated to effectives, 1876, 258.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		2	2				
Enthetic		3	3				
Dietic		1					
Diathetic		1			1		
Developmental							
Tubercular							
Parasitic							
Of the nervous system		1			1		
eye							
ear							
teeth							
circulatory system							
respiratory system							
digestive system		2	1		1		
urinary and genital system		1	1				
locomotive system							
integumentary system		4	4				
Non-malignant tumors and cysts							
Wounds, injuries, and accidents		2	1			1	
Total		16	12		3	*1	

* Drowned.

Catskill, 4th rate. Iron-clad; screw; 496 tons.

[Employed during the year on the North Atlantic Station. Average number of ship's company, 22; total sick-days, 112; deaths, 0; ratio per thousand of cases treated to effectives, 455+; ratio per thousand of cases treated to effectives, 1876, 365.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic							
Enthetic		4	3		1		
Dietic							
Diathetic	1	1			2		
Developmental							
Tubercular							
Parasitic							
Of the nervous system							
eye							
ear							
teeth							
circulatory system		1			1		
respiratory system							
digestive system		1			1		
urinary and genital system		1			1		
locomotive system							
integumentary system		1			1		
Non-malignant tumors and cysts							
Wounds, injuries, and accidents							
Total	1	9	3		7		

Lehigh, 4th rate. Iron-clad; screw; 496 tons.

[Employed during the year on the North Atlantic Station. Average number of ship's company, 22 +; total sick-days, 118; deaths, 0; ratio per thousand of cases treated to effectives, 533 +; ratio per thousand of cases treated to effectives in 1876, 169 +.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		2	2				
Enthetic							
Dietic		1			1		
Diathetic							
Developmental							
Tubercular							
Parasitic							
Of the nervous system		1			1		
eye							
ear							
teeth							
circulatory system							
respiratory system		2	1		1		
digestive system							
urinary and genital system		1			1		
locomotive system		2	1		1		
integumentary system							
Non-malignant tumors and cysts		3	2		1		
Wounds, injuries, and accidents							
Total		12	6		6		

Passaic, 4th rate. Iron-clad; screw; 496 tons.

[Employed during the year on the North Atlantic Station. Average number of ship's company, 35 +; total sick-days, 103; deaths, 0; ratio per thousand of cases treated to effectives, 307 +; ratio per thousand of cases treated to effectives in 1876, 200.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		4	3		1		
Enthetic		1			1		
Dietic							
Diathetic							
Developmental							
Tubercular							
Parasitic							
Of the nervous system							
eye							
ear							
teeth							
circulatory system							
respiratory system		1	1				
digestive system							
urinary and genital system							
locomotive system							
integumentary system		4	4				
Non-malignant tumors and cysts		1	1				
Wounds, injuries, and accidents							
Total		11	9		2		

Saugus, 4th rate. Iron-clad; screw; 550 tons.

[Employed for 273 days (first, second, and third quarters), 1877, on the North Atlantic Station. Average number of ship's company, 21; total sick-days, 18; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic							
Euthetic		1	1				
Dietic							
Diathetic							
Developmental							
Tubercular							
Parasitic							
Of the nervous system							
eye							
ear							
teeth							
circulatory system							
respiratory system							
digestive system							
urinary and genital system							
locomotive system							
integumentary system							
Non-malignant tumors and cysts							
Wounds, injuries, and accidents		1			1		
Total		2	1		1		

Mahopac, 4th rate. Iron-clad; screw; 550 tons.

[Employed for 273 days (first, second, and third quarters), 1877, on the North Atlantic Station. Average number of ship's company, 33 +; total sick-days, 44; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic							
Euthetic		2	2				
Dietic							
Diathetic							
Developmental							
Tubercular							
Parasitic							
Of the nervous system							
eye							
ear							
teeth							
circulatory system							
respiratory system							
digestive system							
urinary and genital system		1			1		
locomotive system							
integumentary system							
Non-malignant tumors and cysts							
Wounds, injuries, and accidents							
Total		3	2		1		

Dictator, 2d rate. Iron-clad; screw; 1,750 tons.

[Employed during the first quarter 1877 on the North Atlantic Station at Port Royal, S. C. Average number of ship's company, 72; total sick-days, 191; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		1	1				
Enthetic		1	1				
Dietic							
Diathetic		1	1				
Developmental							
Tubercular							
Parasitic							
Of the nervous system	2		2				
eye							
ear							
teeth							
circulatory system							
respiratory system		3	2		1		
digestive system							
urinary and genital system							
locomotive system							
integumentary system		1	1				
Non-malignant tumors and cysts							
Wounds, injuries, and accidents		3	2		1		
Total	2	10	10		2		

Shawmut, 3d rate. Wood; screw; 410 tons.

[Employed for 18 days of the first quarter 1877 on the North Atlantic Station. Average number of ship's company, 35; total sick-days, 11.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic							
Enthetic	1		1				
Dietic							
Diathetic							
Developmental							
Tubercular							
Parasitic							
Of the nervous system							
eye							
ear		1	1				
teeth							
circulatory system							
respiratory system							
digestive system							
urinary and genital system							
locomotive system							
integumentary system		1	1				
Non-malignant tumors and cysts							
Wounds, injuries, and accidents							
Total	1	2	3				

Pawnee, 3d rate. Wood; sails; 872 tons.

[Employed for 90 days, first quarter 1877, on the North Atlantic Station, at Port Royal, S. C. Average number of ship's company, 14; total sick-days, 21; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic							
Enthetic							
Dietic							
Diathetic							
Developmental							
Tubercular							
Parasitic							
Of the nervous system							
eye							
ear							
teeth							
circulatory system							
respiratory system		2	1		1		
digestive system							
urinary and genital system							
locomotive system							
integumentary system							
Non-malignant tumors and cysts							
Wounds, injuries, and accidents							
Total		2	1		1		

Montauk, 4th rate. Iron-clad; screw; 496 tons.

[Employed for 181 days, first and second quarters 1877, on the North Atlantic Station. Average number ship's company, 27 +; total sick-days, 16; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic							
Enthetic							
Dietic		3	1		2		
Diathetic							
Developmental							
Tubercular							
Parasitic							
Of the nervous system							
eye							
ear							
teeth							
circulatory system							
respiratory system							
digestive system							
urinary and genital system							
locomotive system							
integumentary system		1			1		
Non-malignant tumors and cysts							
Wounds, injuries and accidents							
Total		4	1		3		

Fortune, 4th rate. Screw; 306 tons.

[Employed during the fourth quarter 1877 on the North Atlantic squadron. Average number of ship's company, 51; total sick-days, 32; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic							
Enthetic		4	2		1		1
Dietic							
Diathetic		1					1
Developmental							
Tubercular							
Parasitic							
Of the nervous system							
eye							
ear							
teeth							
circulatory system		1			1		
respiratory system							
digestive system							
urinary and genital system							
locomotive system							
integumentary system		1			1		
Non-malignant tumors and cysts							
Wounds, injuries, and accidents							
Total		7	2		3		2

SOUTH ATLANTIC STATION.

The geographic limits of this station are the southeast coast of South America and part of the west coast of Africa.

During the year 1877, the following vessels were employed at different times upon this station, viz: Hartford (as flag-ship), Richmond, Adams, and Frolic.

The Hartford arrived on the station during the fourth quarter; previous to this time (during the first, second, and third quarters) the service of this vessel was on the North Atlantic.

The Richmond was *en route* home from the South Pacific Station and was employed on this station until going out of commission—a period of 260 days.

The deaths were, one from pernicious fever, one from organic disease of the heart, and one from drowning.

No epidemic occurred on this station.

The usual tables are appended.

First quarter, 1877. South Atlantic Station.

[Aggregate: Total number of ships' companies, 1,074; total number of sick-days, 2,150; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	1	9	9				1
Enthetic	4	18	14		3		5
Dietic		4	4				
Diathetic	1	12	8		3		2
Developmental							
Tubercular							
Parasitic							
Of the nervous system	2	5	4		1		2
eye		4	3				1
ear							
teeth		5	2		1		2
circulatory system							
respiratory system	2	15	13		2		2
digestive system	2	17	16		2		1
urinary and genital system	1	6	7				
locomotive system							
integumentary system	4	26	27				3
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	4	46	44				6
Total	21	167	151		12		25

Second quarter, 1877. South Atlantic Station.

[Aggregate: Total number of ships' companies, 997; total number of sick-days, 2,073; deaths, 2.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	1	17	14		1		3
Euthetic	5	16	16		4		1
Dietic		3	3				
Diathetic	2	12	9		2		3
Developmental							
Tubercular							
Parasitic							
Of the nervous system	2	7	7				2
eye	1	2	3				
ear							
teeth							
circulatory system	2	4	1		3	*1	1
respiratory system	2	12	8		5		1
digestive system	1	22	20				3
urinary and genital system		5	5				
locomotive system		1					1
integumentary system	3	24	23		2		2
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	6	39	40			†1	4
Total	25	164	149		17	2	21

* Organic disease of heart.

† Drowned.

Third quarter, 1877. South Atlantic Station.

[Aggregate: Total number of ships' companies, 972; total number of sick-days, 1,573; deaths, 1.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic.....	3	17	18		1	*1	
Enthetic.....	1	3	3		1		
Dietic.....	1	1	1				
Diathetic.....	3	11	7		7		
Developmental.....		1			1		
Tubercular.....		1	1				
Parasitic.....		1	1				
Of the nervous system.....	2	8	5		4		1
eye.....		4	3		1		
ear.....							
teeth.....							
circulatory system.....	1	1			2		
respiratory system.....	1	13	8		4		2
digestive system.....	3	28	27		3		1
urinary and genital system.....		3	3				
locomotive system.....	1	1	2				
integumentary system.....	2	22	17	1	2		4
Non-malignant tumors and cysts.....							
Wounds, injuries, and accidents.....	4	37	31		6		4
Total.....	21	151	126	1	32	1	12

* Pernicious fever.

Fourth quarter, 1877. South Atlantic Station.

[Aggregate: Total number of ships' companies, 714; total sick-days, 1,494; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic.....		21	15		3		3
Enthetic.....		15	11		1		3
Dietic.....		3	2				1
Diathetic.....		10	8				2
Developmental.....							
Tubercular.....							
Parasitic.....		1	1				
Of the nervous system.....	1	7	8				1
eye.....		4	3				
ear.....		2	1		1		
teeth.....							
circulatory system.....							
respiratory system.....	2	14	11		3		3
digestive system.....	1	20	19		3		
urinary and genital system.....		8	6				1
locomotive system.....		2			2		
integumentary system.....	4	14	15		1		2
Non-malignant tumors and cysts.....							
Wounds, injuries, and accidents.....	4	31	31		1		3
Total.....	12	152	131		14		19

South Atlantic Station.

AGGREGATE, 1877.

[Average number ships' companies, 989 +; total sick-days, 7,295; ratio per thousand of cases treated to effectives, 697 +; in 1876, = 727 +; deaths, 3.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	1	64	56		5	1	3
Enthetic	4	52	44		9		3
Dietic		11	10				1
Diathetic	1	45	32		12		2
Developmental		1			1		
Tubercular							
Parasitic		2	2				
Of the nervous system	2	27	24		5		
eye		14	12		1		1
ear		2	1		1		
teeth							
circulatory system		10	3		6	1	
respiratory system	2	54	40		13		3
digestive system	2	87	82		7		
urinary and genital system	1	22	21		1		1
locomotive system		4	2		2		
integumentary system	4	86	82	1	5		2
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	4	153	146		7	1	3
Total	21	634	557	1	75	3	19

Hartford, flag-ship, 2d rate. Wood; screw; 2,000 tons.

[Employed during the first, second, and third quarters on North Atlantic Station; during the fourth quarter was at sea as flag-ship of South Atlantic Station. Average number of ship's company, 3,974; total sick-days, 2,443; deaths, 0; ratio per thousand of cases treated to effectives, 790 +; ratio per thousand of cases treated to effectives in 1876, 933.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		38	30		5		3
Enthetic	1	24	15		9		1
Dietic		4	4				
Diathetic		26	15		10		2
Developmental							
Tubercular		1	1				
Parasitic							
Of the nervous system	1	12	10		3		
eye		9	7		1		1
ear		2	1		1		
teeth							
circulatory system		6	2		4		
respiratory system	1	26	15		10		2
digestive system	1	47	43		5		
urinary and genital system		10	10				
locomotive system		2			2		
integumentary system	1	31	28		3		1
Non-malignant tumors and cysts							
Wounds, injuries, and accidents		71	65		3		3
Total	5	309	245		56		13

Richmond, 2d rate. Wood; screw; 2,000 tons.

[Employed for 260 days of 1877 on the South Atlantic Station and *en route* home. Average number of ship's company, 303+; total sick-days, 2,724; deaths, 2; ratio per thousand of cases treated to effectives (260 days), 530; ratio per thousand of cases treated to effectives in 1876, 622+].

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	1	20	20			1	
Enthetic	3	18	19				
Dietic		2	2				
Diathetic		7	6		1		
Developmental		1			1		
Tubercular							
Parasitic		1	1				
Of the nervous system	1	4	3		2		
eye		4	4				
ear							
teeth							
circulatory system		3			2	1	
respiratory system	1	10	10				
digestive system	1	14	15		1		
urinary and genital system		1	1				
locomotive system		2	2				
integumentary system	2	23	23	1	1		
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	3	41	41		3		
Total	12	149	147	1	11	2	

Adams, 3d rate. Screw; wood; 615 tons.

[During the first quarter was on the North Atlantic, and the rest of the year on the South Atlantic Station. Average number of ship's company, 216+; total sick-days, 1,432; deaths, 0; ratio per thousand of cases treated to effectives, 526+; in 1876, 175+.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		3	3				
Enthetic		11	9				
Dietic		4	3				
Diathetic		11	11				
Developmental							
Tubercular							
Parasitic							
Of the nervous system		7	7				
eye		1	1				
ear							
teeth							
circulatory system							
respiratory system		13	11		1		1
digestive system		14	13		1		
urinary and genital system		8	7				1
locomotive system							
integumentary system	1	22	22				1
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	1	18	19				
Total	2	112	106		2		6

Frolic, 4th rate. Iron; paddle-wheel; 614 tons.

[Employed for 304 days of 1877 on the South Atlantic Station. Average number of ship's company 97+; total sick-days, 696; deaths, 1; ratio per thousand of cases treated to effectives (304 days), 689+; ratio per thousand of cases treated to effectives in 1876, 453.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		3	3				
Enthetic		1	1				
Dietic		1	1				
Diathetic	1	1	1		1		
Developmental							
Tubercular							
Parasitic							
Of the nervous system		4	4				
eye							
ear							
teeth							
circulatory system		2	2				
respiratory system		4	3		1		
digestive system		12	11		1		
urinary and genital system	1	3	3		1		
locomotive system							
integumentary system		10	9				
Non-malignant tumors and cysts							
Wounds, injuries, and accidents		23	21		1	1	
Total	2	64	59		6	1	

EUROPEAN STATION.

The geographic limits of this station are all the coasts of Europe, the Mediterranean, and part of the west coast of Africa.

The following vessels were employed on this station: Trenton (flag-ship), Vandalia, Marion, Alliance, and Dispatch.

The usual tables are appended.

The deaths were, one from drowning, one from asthma, one from valvular disease of the heart, and one from typhoid-pneumonia.

During the first quarter, on the Trenton, then in New York, there appeared an epidemic of cynanche parotidæ, numbering 15 cases. The Minnesota at the same time, in close proximity, reports 10 cases.

First quarter, 1877. European Station.

[Aggregate: Total number of ships' companies, 1,103; total number of sick-days, 1,692; deaths, 1.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		36	34				2
Enthetic	3	12	12				3
Dietic		5	5				
Diathetic		15	12		1		2
Developmental							
Tubercular							
Parasitic							
Of the nervous system	1	14	14				1
eye		5	4				1
ear		2	1		1		
teeth							
circulatory system		2	1		1		
respiratory system		47	43		1		3
digestive system		32	31		1		
urinary and genital system		8	5		1		3
locomotive system							
integumentary system	2	19	19				3
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	2	50	38		1	1	12
Total	8	247	219		7	1*	28

* Drowned.

Second quarter, 1877. European Station.

[Aggregate: Total number of ships' companies, 1,090; total number of sick-days, 2,437; deaths, 2.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	2	36	36	1	1		
Enthetic	3	18	18				3
Dietic		4	4				
Diathetic	2	22	22		1		1
Developmental							
Tubercular							
Parasitic							
Of the nervous system	1	19	16				4
eye	1	6	7				
ear							
teeth							
circulatory system		5	1		1	1*	2
respiratory system	3	24	23		3	1†	
digestive system		44	42				2
urinary and genital system	2	8	7				3
locomotive system							
integumentary system	2	34	35		1		
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	12	58	63		1		6
Total	28	278	274	1	8	2	21

* Asthma.

† Morb. valvul. cord.

Third quarter, 1877. European Station.

[Aggregate: Total number of ships' companies, 1,088; total number of sick-days, 2,845; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		35	35				
Enthetic	3	17	17				3
Dietic		3	3				
Diathetic	1	15	15				1
Developmental							
Tubercular							
Parasitic		2	2				
Of the nervous system	4	25	23		1		5
eye		6	6				
ear		1	1				
teeth		1	1				
circulatory system	2	2	1		2		1
respiratory system		25	19		1		5
digestive system	2	62	61				3
urinary and genital system	3	8	9				2
locomotive system		2	2				
integumentary system		48	48				
Non-malignant tumors and cysts		2	2				
Wounds, injuries, and accidents	6	57	60				3
Total	21	311	305		4		23

Fourth quarter, 1877. European Station.

[Aggregate: Total number of ships' companies, 1,076; total number of sick-days, 2,121; deaths, 1.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		20	20				
Enthetic	3	21	16		2		6
Dietic		6	5				1
Diathetic	1	14	13		2		
Developmental							
Tubercular							
Parasitic							
Of the nervous system	5	18	19		3		1
eye		2	1		1		
ear		1	1				
teeth		1	1				
circulatory system	1	1			2		
respiratory system	5	26	22		5	*1	3
digestive system	3	32	34				1
urinary and genital system	2	6	7				1
locomotive system							
integumentary system		43	39		1		3
Non-malignant tumors and cysts		1	1				
Wounds, injuries, and accidents	8	47	47				3
Total	23	239	220		16	1	19

* Typhoid-pneumonia.

European Station.

AGGREGATE, 1877.

[Average number ships' companies, 1,089 +; total sick-days, 9,185. Ratio per thousand of cases treated to effectives, 984 +; 746 + in 1876; deaths, 4.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		127	125	1	1		
Enthetic	3	68	63		2		6
Dietic		18	17				1
Diathetic		66	62		4		
Developmental							
Tubercular							
Parasitic		3					
Of the nervous system	1	76	72		4		1
eye		19	18		1		
ear		4	3		1		
teeth		3	3				
circulatory system		10	10		6		
respiratory system		123	107		10	2	3
digestive system		170	168		1		1
urinary and genital system		30	28		1		1
locomotive system		3	2				
integumentary system	2	144	141		2		3
Non-malignant tumors and cysts		3	3				
Wounds, injuries, and accidents	2	212	208		2	1	3
Total	8	1,075	1,024	1	35	4	19

Trenton, flag-ship, 2d rate. Wood; screw; 2,300 tons.

[Employed for 310 days in 1877 on European Station. Average number of ship's company, 465 +; total sick-days, 3,468; deaths, 3. Ratio per thousand of cases treated to effectives, 717 +.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		41	40	1			
Enthetic		24	19		2		3
Dietic		3	3				
Diathetic		34	32		2		
Developmental							
Tubercular							
Parasitic							
Of the nervous system		12	11		1		
eye		8	7		1		
ear		1			1		
teeth		7	1				
circulatory system		26	20		5	1	
respiratory system		33	33		5	1	
digestive system		10	8		1		1
urinary and genital system		56	55				1
locomotive system		1	1				
integumentary system		88	84		1	1	2
Non-malignant tumors and cysts							
Wounds, injuries, and accidents							
Total		344	314	1	19	3	7

Despatch, 4th rate. Wood; screw; 730 tons.

(Employed during the year on the European Station. Average number of ship's company, 54 +; total sick-days, 482; deaths, 0. Ratio per thousand of cases treated to effectives, 921 +; ratio per thousand of cases treated to effectives in 1876, 695 +.)

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		10	9		1		
Enthetic		9	9				
Dietic		1	1				
Diathetic		1	1				
Developmental							
Tubercular							
Parasitic							
Of the nervous system							
eye		1	1				
ear		1	1				
teeth							
circulatory system							
respiratory system		4	4				
digestive system		14	14				
urinary and genital system		1	1				
locomotive system		1	1				
integumentary system		2	2				
Non-malignant tumors and cysts							
Wounds, injuries, and accidents		6	6				
Total		51	50		1		

Vandalia, 3d rate. Screw; 981 tons.

(Employed during the year on the European Station. Average number of ship's company, 192 +; total sick-days, 1,516; deaths, 1. Ratio per thousand of cases treated to effectives, 907 +; ratio per thousand of cases treated to effectives in 1876, 728 +.)

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		36	36				
Enthetic	1	8	9				
Dietic		4	3		1		
Diathetic							
Developmental							
Tubercular		2	2				
Parasitic		16	16		1		
Of the nervous system	1						
eye		4	4				
ear		1	1				
teeth							
circulatory system							
respiratory system		19	17			1	1
digestive system		15	15				
urinary and genital system		9	9				
locomotive system							
integumentary system		28	25		2		1
Non-malignant tumors and cysts		1	1				
Wounds, injuries, and accidents		30	30				
Total	2	173	168		4	1	2

Marion, 3d rate. Wood; screw; 910 tons.

[Employed during the year on the European Station. Average number of ship's company, 217 +; total sick-days, 2,129; deaths, 0. Ratio per thousand of cases treated to effectives, 1,204 +. Ratio per thousand of cases treated to effectives in 1876, 1,332 +.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		15	15				
Enthetic	2	17	17				12
Dietic		13	12				1
Diathetic		9	9				
Developmental							
Tubercular							
Parasitic							
Of the nervous system		9	9				
eye		5	5				
ear		1	1				
teeth		2	2				
circulatory system							
respiratory system		52	48		2		2
digestive system		47	47				
urinary and genital system		6	6				
locomotive system							
integumentary system	2	38	39				1
Non-malignant tumors and cysts		1	1				
Wounds, injuries, and accidents	2	41	42				1
Total	6	256	253		2		7

Alliance, 3d rate. Screw; 615 tons.

[Employed during the year on the European Station. Average number of ship's company, 159 +; total sick-days, 1,510; deaths, 0. Ratio per thousand of cases treated to effectives, 1,576 +.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		25	25				
Enthetic		10	9				1
Dietic		1	1				
Diathetic		18	17		1		
Developmental							
Tubercular							
Parasitic							
Of the nervous system		39	36		2		1
eye		1	1				
ear							
teeth							
circulatory system		3	2		1		
respiratory system		21	18		3		
digestive system		61	59		1		1
urinary and genital system		4	4				
locomotive system		1	1				
integumentary system		20	20				
Non-malignant tumors and cysts							
Wounds, injuries, and accidents		47	46		1		
Total		251	239		9		3

NORTH PACIFIC STATION.

The geographic limits of this station are north of the equator, except so much of the west coast of South America and of the Isthmus as lies between the equator and Panama and the Sandwich Islands.

The following vessels were employed on this station: Pensacola (flag-ship) and Lackawanna.

The usual tables are appended and explain themselves.

The deaths were one from angina pectoris, one from pneumonia, and one from fracture of the cranium.

First quarter, 1877. North Pacific Station.

[Aggregate: Total number of ships' companies, 591; total number of sick-days, 1,354; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	3	16	18				1
Enthetic	3	12	11				3
Dietic	1	2	3				
Diathetic	2	6	5		2		1
Developmental							
Tubercular							
Parasitic							
Of the nervous system		10	8	1	1		
eye		1	1				
ear		1		1			
teeth							
circulatory system		1					1
respiratory system	3	12	7	2	3		3
digestive system		12	11				1
urinary and genital system		3	2				1
locomotive system		1	1				
integumentary system		14	12				2
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	2	39	35		1		18
Total	13	130	114	4	7		18

Second quarter, 1877. North Pacific Station.

[Aggregate: Total number of ships' companies, 595; total number of sick-days, 1,392; deaths, 1.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	1	13	11				3
Enthetic	3	4	6				1
Dietic							
Diathetic	1	11	11				1
Developmental							
Tubercular							
Parasitic							
Of the nervous system		11	10				1
eye		4	4				
ear							
teeth							
circulatory system	1		1				
respiratory system	3	4	5				2
digestive system	1	9	10				
urinary and genital system	1	7	7				1
locomotive system							
integumentary system	2	26	23				5
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	5	26	26			*1	4
Total	18	115	114			1	18

* Fracture of skull.

Third quarter, 1877. North Pacific Station.

[Aggregate: Total number of ships' companies, 537; total number of sick-days, 978; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	3	7	8		1		1
Enthetic	1	2	1		1		1
Dietic		15	15				
Diathetic	1	10	9		1		1
Developmental							
Tubercular							
Parasitic							
Of the nervous system	1	2	2		1		
eye							
ear							
teeth							
circulatory system		1			1		
respiratory system	2	10	8		3		1
digestive system		26	25		1		
urinary and genital system	1	5	6				
locomotive system							
integumentary system	5	16	18	1	1		1
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	4	32	32		2		2
Total	18	126	124	1	12		7

Fourth quarter, 1877. North Pacific Station.

[Aggregate: Total number of ships' companies, 500; total number of sick-days, 864; deaths, 2.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	1	1	1				1
Enthetic	1	4	5				1
Dietic		3	3				
Diathetic	1	8	7		2		
Developmental		2			1		1
Tubercular							
Parasitic							
Of the nervous system		6	5				1
eye		2	1				1
ear		1	1				
teeth		1	1				
circulatory system		2			1	*1	
respiratory system	1	8	7		1	†1	
digestive system		13	13				
urinary and genital system		7	5		1		1
locomotive system							
integumentary system	1	8	8		1		
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	2	30	26	1	2		3
Total	7	96	83	1	9	2	8

* Angina pectoris.

† Pneumonia typhoides.

North Pacific Station.

AGGREGATE, 1877.

[Average number of ships' companies, 560+; total sick-days, 4,568. Ratio per thousand of cases treated to effectives, 839+. Deaths, 3.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic.....	3	37	38		1		1
Enthetic.....	2	22	23		1		
Dietic.....	1	20	21				
Diathetic.....	2	35	32		5		
Developmental.....		2			1		1
Tubercular.....							
Parasitic.....							
Of the nervous system.....		29	25	1	2		1
eye.....		7	6				1
ear.....		2	1	1			
teeth.....		1	1				
circulatory system.....		4	1		2	1	
respiratory system.....	3	34	27	2	7	1	
digestive system.....		60	59		1		
urinary and genital system.....		22	20		1		1
locomotive system.....		1	1				
integumentary system.....		64	61	1	2		
Non-malignant tumors and cysts.....							
Wounds, injuries, and accidents.....	2	127	119	1	5	1	3
Total.....	13	467	435	6	28	3	8

Pensacola, flag-ship, 2d rate. Wood; screw; 2,000 tons.

[For the year 1877 was employed on the North Pacific Station. Average number of ship's company 370+; total sick-days, 3,480; deaths, 1. Ratio per thousand of cases treated to effectives, 998+. Ratio per thousand of cases treated to effectives in 1876, 1,464+.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic.....	2	34	34		1		1
Enthetic.....		15	14		1		
Dietic.....		18	18				
Diathetic.....	2	28	27		3		
Developmental.....		2			1		1
Tubercular.....							
Parasitic.....							
Of the nervous system.....		23	20		2		1
eye.....		5	4				1
ear.....		1	1				
teeth.....		1	1				
circulatory system.....		1			1		
respiratory system.....	1	18	15		3	1	
digestive system.....		53	52				
urinary and genital system.....		15	13		1		1
locomotive system.....							
integumentary system.....		54	52	1	1		
Non-malignant tumors and cysts.....							
Wounds, injuries, and accidents.....		96	89	1	3		3
Total.....	5	364	340	2	18	1	8

* Pneumonia.

Lackawanna, 2d rate. Wood; screw; 1,026 tons.

[Employed during the year on the North Pacific Station. Average number of ship's company, 187+; total sick-days, 1,108; deaths, 2. Ratio per thousand of cases treated to effectives, 592+. Ratio per thousand of cases treated to effectives in 1876, 490+.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	1	3	4				
Enthetic	2	5	9				
Dietic	1	2	3				
Diathetic		5	5		2		
Developmental							
Tubercular							
Parasitic							
Of the nervous system		6	5	1			
eye		2	2				
ear		1		1			
teeth							
circulatory system		3	1		1	*1	
respiratory system	2	16	12	2	4		
digestive system		7	7				
urinary and genital system		7	7				
locomotive system		1	1				
integumentary system		10	9		1		
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	2	31	30		2	†1	
Total	8	103	95	4	10	2	

* Angina pectoris.

† Fracture of skull.

SOUTH PACIFIC STATION.

The geographic limits of this station are the west coast of the Isthmus and South America, lying between Panama and the equator, the west coast of South America, the islands and waters of the Pacific south of the equator as far west as the one hundred and fiftieth parallel, including the coast and sea-ports of Australia.

The vessels employed on this station were the *Omaha* (flag ship) and *Onward*.

The usual tables are appended.

The *Omaha*, being the cruising-vessel, presents more of the climatic effects upon her crew.

The *Onward* was stationed at Callao, Peru.

The ratio of cases treated, per thousand, to effectives on this station for the year is very large, *i. e.*, 1,948.

The same ratio applied to both the North and South Pacific squadrons combined is 1,300 against 1,046 in 1876.

First quarter, 1877. South Pacific Squadron.

[Aggregate: Total number of ships' companies, 287; total number of sick-days, 1,045; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	2	33	31				4
Enthetic	4	10	9				5
Dietic		5	5				
Diathetic		14	13		1		
Developmental							
Tubercular							
Parasitic							
Of the nervous system		3		1	2		
eye		1					1
ear							
teeth							
circulatory system		3		1	2		
respiratory system	1	3	2		1		1
digestive system	2	18	18				2
urinary and genital system	1	4	4		1		
locomotive system		1			1		
integumentary system		9	9				
Non-malignant tumors and cysts							
Wounds, injuries, and accidents		17	16				1
Total	10	121	107	2	8		14

Second quarter, 1877. South Pacific Station.

[Aggregate: Total number of ships' companies, 298; total number of sick-days, 1,469; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	4	40	53				
Enthetic	5	10	13		1		1
Dietic		11	11				
Diathetic		17	16		1		
Developmental							
Tubercular							
Parasitic							
Of the nervous system		6	4	1			1
eye	1	1	1	1			
ear		2	2				
teeth							
circulatory system		1					1
respiratory system	1	3	3				1
digestive system	2	24	23		1		2
urinary and genital system		2	1				1
locomotive system							
integumentary system		29	27				2
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	1	30	27				4
Total	14	185	181	2	3		13

Third quarter, 1877. South Pacific Station.

[Aggregate: Total number of ships' companies, 301; total number of sick-days, 1,161; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		30	29		1		
Enthetic	1	12	12				1
Dietic		15	14	1			
Diathetic		3	3				
Developmental							
Tubercular							
Parasitic							
Of the nervous system	1	1	1		1		
eye							
ear		1	1				
teeth							
circulatory system	1	1	1		1		
respiratory system	1	7	6		1		1
digestive system	1	6	7		1		
urinary and genital system	1	8	7		2		
locomotive system							
integumentary system	2	9	10		1		
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	4	20	20		1		5
Total	13	113	111	1	9		5

Fourth quarter, 1877. South Pacific Station.

[Aggregate: Total number of ships' companies, 296 +; total number of sick-days, 936; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		12	11				1
Enthetic	1	10	10				1
Dietic		3	3				
Diathetic		10	9				1
Developmental							
Tubercular							
Parasitic							
Of the nervous system							
eye							
ear		1					1
teeth							
circulatory system	1	9	10				
respiratory system		16	15				1
digestive system		16	16				
urinary and genital system							
locomotive system							
integumentary system		8	7				1
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	3	20	25				4
Total	5	111	106				10

South Pacific Station.

AGGREGATE, 1877.

[Average number of ships' companies, 270 +; total sick-days, 4,611; ratio per thousand of cases treated to effectives, 1,948 +; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	2	124	124	.....	1	.....	1
Enthetic	4	42	44	.....	1	.....	1
Dietic .....	.....	34	33	1	.....	.....	.....
Diathetic .....	.....	44	41	.....	2	.....	1
Developmental .....	.....	.....	.....	.....	.....	.....	.....
Tubercular .....	.....	.....	.....	.....	.....	.....	.....
Parasitic .....	.....	.....	.....	.....	.....	.....	.....
Of the nervous system .....	.....	10	5	2	3	.....	.....
eye .....	.....	2	1	1	.....	.....	.....
ear .....	.....	4	3	.....	.....	.....	1
teeth .....	.....	.....	.....	.....	.....	.....	.....
circulatory system .....	.....	5	1	1	3	.....	.....
respiratory system	1	22	21	.....	2	.....	.....
digestive system	2	64	64	.....	2	.....	.....
urinary and genital system	1	17	16	.....	2	.....	.....
locomotive system .....	.....	1	.....	.....	1	.....	.....
integumentary system .....	.....	55	53	.....	1	.....	1
Non-malignant tumors and cysts .....	.....	.....	.....	.....	.....	.....	.....
Wounds, injuries, and accidents .....	.....	93	88	.....	1	.....	4
Total	10	517	494	5	19	.....	9

Omaha, flag-ship, 2d rate. Wood; screw; 1,122 tons.

[Employed in 1877 on the South Pacific Station. Average number of ship's company, 249 +; total sick-days, 4,133; deaths, 0; ratio per thousand of cases treated to effectives, 1,923 +; ratio per thousand of cases treated to effectives in 1876, 1,699 +.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	2	108	108	.....	1	.....	1
Enthetic	4	40	42	.....	1	.....	1
Dietic .....	.....	34	33	1	.....	.....	.....
Diathetic .....	.....	42	39	.....	2	.....	1
Developmental .....	.....	.....	.....	.....	.....	.....	.....
Tubercular .....	.....	.....	.....	.....	.....	.....	.....
Parasitic .....	.....	.....	.....	.....	.....	.....	.....
Of the nervous system .....	.....	6	5	.....	1	.....	.....
eye .....	.....	1	.....	1	.....	.....	.....
ear .....	.....	3	2	.....	.....	.....	1
teeth .....	.....	.....	.....	.....	.....	.....	.....
circulatory system .....	.....	3	.....	.....	3	.....	.....
respiratory system .....	.....	20	18	.....	2	.....	.....
digestive system	1	60	58	.....	2	.....	1
urinary and genital system	1	15	14	.....	2	.....	.....
locomotive system .....	.....	1	.....	.....	1	.....	.....
integumentary system .....	.....	49	47	.....	1	.....	1
Non-malignant tumors and cysts .....	.....	.....	.....	.....	.....	.....	.....
Wounds, injuries, and accidents .....	.....	90	85	.....	1	.....	4
Total	8	472	451	2	17	.....	10

Onward, 4th rate. Sails; wood; 804 tons.

[Employed during 1877 on South Pacific Station at Callao. Average number of ship's company, 46 total sick-days, 478; deaths, 0; ratio per thousand of cases treated to effectives, 1,021 +; ratio per thousand of cases treated to effectives in 1876, 846 +].

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Disch.	Remaining.
Miasmatic		16	16				
Enthetic		2	2				
Dietic							
Diathetic		2	2				
Developmental							
Tubercular							
Parasitic							
Of the nervous system		4		2	2		
eye		1	1				
ear		1	1				
teeth							
circulatory system		2	1	1			
respiratory system		1	2	3			
digestive system		1	4	5			
urinary and genital system		2	2				
locomotive system							
integumentary system		6	6				
Non-malignant tumors and cysts							
Wounds, injuries, and accidents		3	3				
Total	2	45	42	3	2		

ASIATIC STATION.

The geographic limits of this station are the eastern coast of Asia and the adjacent islands.

The following vessels were employed on this station: Tennessee (flag-ship), Monongahela, Kearsarge, Monocacy, Ashuelot, Alert, Ranger, Yantic, and Palos.

The usual tables are appended.

The deaths were two from epidemic cholera, one from acute dysentery, one from remittent fever, one from croupous pneumonia, one from cancer of the rectum, one from compound fracture from a fall from aloft, one from a pistol-shot wound of the cranium, and one from drowning.

During the latter part of the third and commencement of the fourth quarter, a slight epidemic of cholera appeared on the Ranger; 5 cases and 2 deaths are reported. No history of the origin, &c., has been presented.

First quarter, 1877. Asiatic Station.

[Aggregate: Total number of ships' companies, 1,456; total number of sick-days, 4,344; deaths, 3.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	1	32	27		3		3
Enthetic	9	31	32		1		7
Dietic		3	3				
Diathetic	7	50	43		7		7
Developmental							
Tubercular		3	3				
Parasitic							
Of the nervous system	1	23	21		2		1
eye		8	7				1
ear		3	3				
teeth		1	1				
circulatory system		5	3				2
respiratory system	1	41	28		4	*1	9
digestive system	6	75	69		1	†1	10
urinary and genital system	2	16	10		3		5
locomotive system							
integumentary system	7	47	51				3
Non-malignant tumors and cysts		1	1				
Wounds, injuries, and accidents	8	72	65		2	‡1	12
Total	42	411	367		23	3	60

*Croupous pneumonia. †Cancer of rectum. ‡Compound fracture of cranium. Fell from aloft

Second quarter, 1877. Asiatic Station.

[Aggregate: Total number of ships' companies, 1,479; total number of sick-days, 4,467; deaths, 1.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	3	46	44	1	1		3
Enthetic	7	46	31	1	10		11
Dietic		7	7				
Diathetic	7	42	39		9		1
Developmental							
Tubercular							
Parasitic							
Of the nervous system	1	10	7		2		2
eye	1	15	14	1	1		
ear							
teeth		1	1				
circulatory system	2	2	2		2		
respiratory system	9	39	38		6		4
digestive system	10	51	50		5		6
urinary and genital system	5	14	15		2		2
locomotive system		4	2		1		1
integumentary system	3	42	39		1		5
Non-malignant tumors and cysts		3	2				1
Wounds, injuries, and accidents	12	94	97		2	1	6
Total	60	416	388	3	42	*1	42

*Pistol-shot wound of head.

Third quarter, 1877. Asiatic Station.

[Aggregate: Total number of ships' companies, 1,425; total number of sick-days, 4,067; deaths, 3.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	3	39	38	.....	1	13	1
Enthetic	11	43	39	.....	10	.....	5
Dietic .....	.....	13	13	.....	.....	.....	.....
Diathetic	1	41	24	.....	9	.....	9
Developmental .....	.....	.....	.....	.....	.....	.....	.....
Tubercular .....	.....	.....	.....	.....	.....	.....	.....
Parasitic .....	.....	.....	.....	.....	.....	.....	.....
Of the nervous system	2	24	12	.....	2	.....	2
eye .....	.....	3	2	.....	.....	.....	1
ear .....	.....	9	7	.....	1	.....	1
teeth .....	.....	.....	.....	.....	.....	.....	.....
circulatory system .....	.....	5	2	.....	3	.....	.....
respiratory system	4	32	29	.....	5	1	.....
digestive system	6	102	99	1	3	.....	.....
urinary and genital system	2	15	13	.....	3	.....	.....
locomotive system	1	1	2	.....	.....	.....	.....
integumentary system	5	47	44	.....	2	.....	6
Non-malignant tumors and cysts	1	3	3	.....	.....	.....	1
Wounds, injuries, and accidents	6	84	80	.....	3	.....	7
Total	42	461	417	1	42	*3	40

* One cholera epidemica; one febris remittens; one drowning.

Fourth quarter, 1877. Asiatic Station.

[Aggregate: Total number of ships' companies, 1,429; total number of sick-days, 4,705; deaths, 2.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	1	50	49	.....	5	1	5
Enthetic	5	38	34	.....	7	.....	2
Dietic .....	.....	8	8	.....	.....	.....	.....
Diathetic	9	28	30	.....	5	.....	2
Developmental .....	.....	.....	.....	.....	.....	.....	.....
Tubercular .....	.....	.....	.....	.....	.....	.....	.....
Parasitic .....	.....	1	1	.....	.....	.....	.....
Of the nervous system	2	13	10	.....	5	.....	.....
eye	1	6	7	.....	.....	.....	.....
ear	1	4	3	.....	.....	.....	2
teeth .....	.....	.....	.....	.....	.....	.....	.....
circulatory system .....	.....	5	2	.....	3	.....	.....
respiratory system	1	47	32	.....	7	.....	9
digestive system	5	88	84	.....	2	1	6
urinary and genital system	1	13	12	.....	1	.....	1
locomotive system .....	.....	3	3	.....	.....	.....	.....
integumentary system	6	57	53	.....	1	.....	9
Non-malignant tumors and cysts	1	1	1	.....	.....	.....	.....
Wounds, injuries, and accidents	7	81	77	.....	5	.....	6
Total	40	451	406	.....	41	*2	42

* One cholera epidemica; one acute dysentery.

Asiatic Station.

AGGREGATE, 1877.

Average number of ships' companies, 1,447+; total sick-days, 17,583; deaths, 9; ratio per thousand of cases treated to effectives, 1,230 +, 1,254 + in 1876.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic.....	1	176	158	1	10	3	5
Enthetic.....	9	158	136	1	28		2
Dietic.....		31	31				
Diathetic.....	7	161	136		30		2
Developmental.....							
Tubercular.....							
Parasitic.....		4	4				
Of the nervous system.....	1	70	60		11		
eye.....		32	30	1	1		
ear.....		16	13		1		2
teeth.....		2	2				
circulatory system.....		17	9		8		
respiratory system.....	1	159	127		23	2	9
digestive system.....	6	316	302	1	11	2	6
urinary and genital system.....	2	58	50		9		1
locomotive system.....		8	7		1		
integumentary system.....	7	193	187		4		9
Non-malignant tumors and cysts.....		7	7				
Wounds, injuries, and accidents.....	8	331	319		12	2	6
Total.....	42	1,739	1,578	4	148	9	42

Tennessee, flag-ship, 2d rate. Wood; screw; 2,840 tons.

[Employed during the year on the Asiatic Station. Average number of ship's company, 427+; total sick-days, 6,338; deaths, 0; ratio per thousand of cases treated to effectives, 1,511 +; ratio per thousand of cases treated to effectives, 1876, 2,042.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic.....	1	52	48		2		3
Enthetic.....	8	57	44		15		1
Dietic.....		9	9				
Diathetic.....	5	75	68		11		1
Developmental.....							
Tubercular.....							
Parasitic.....		2	2				
Of the nervous system.....		29	28		1		
eye.....		13	13				
ear.....		10	8				2
teeth.....		2	2				
circulatory system.....		11	7		4		
respiratory system.....		46	38		6		2
digestive system.....	1	101	97		1		4
urinary and genital system.....		16	14		1		1
locomotive system.....		1	1				
integumentary system.....	8	86	83		2		4
Non-malignant tumors and cysts.....		2	2				
Wounds, injuries, and accidents.....	5	116	120		1		
Total.....	18	628	584		44		18

Monongahela, 2d rate. Wood; screw; 960 tons.

[During the first and second quarters was employed on the Northern Atlantic Station, the third quarter was en route to and on the Asiatic during the fourth quarter, 1877. Average number of ship's company 245 +; total sick-days, 2,555; deaths, 0; ratio per thousand of cases treated to effectives, 1,094 +; ratio per thousand of cases treated to effectives, 1876, 1,130 +.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		30	30				
Enthetic	1	19	16		3		1
Dietic		2	2				
Diathetic		28	22		5		1
Developmental							
Tubercular							
Parasitic							
Of the nervous system		6	6				
eye		3	3		1		
ear		2	1		1		
teeth							
circulatory system		1			1		
respiratory system		36	31		5		
digestive system		48	48				
urinary and genital system		8	7		1		
locomotive system		1	1				
integumentary system		25	22		1		2
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	2	57	55		1		3
Total	3	266	243		19		7

Kearsarge, 3d rate. Wood; screw; 695 tons.

[Employed during the year on the Asiatic Station, arriving home in the fourth quarter, 1877. Average number of ship's company, 179 +; total sick-days, 2,795; deaths, 2; ratio per thousand of cases treated to effectives, 1,164 +; ratio per thousand of cases treated to effectives, 1876, 1,740 +.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		16	16				
Enthetic	3	50	32		1		
Dietic		9	9				
Diathetic		9	6		3		
Developmental							
Tubercular							
Parasitic							
Of the nervous system		6	3		3		
eye		3	3				
ear							
teeth							
circulatory system		3	1		2		
respiratory system		22	14		4	1	3
digestive system		26	22		3	1	
urinary and genital system	2	7	4		5		
locomotive system		1	1				
integumentary system	2	35	33		1		
Non-malignant tumors and cysts		5	5				
Wounds, injuries, and accidents	1	37	38				
Total	8	209	187		22	2	6

* One drowning; one acute dysentery.

Monocacy, 3d rate. Iron; paddle; 746 tons.

[During the year employed on the Asiatic Station. Average number of ship's company, 124; total sick days, 1,358; deaths, 0; ratio per thousand of cases treated to effectives, 950 +; ratio per thousand of cases treated to effectives, 1876, 555 +.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		10	10				
Enthetic		11	8	1	2		
Dietic		1	1				
Diathetic	1	3	4				
Developmental							
Tubercular							
Parasitic							
Of the nervous system		5	4		1		
eye		2	2				
ear		2	2				
teeth							
circulatory system							
respiratory system		7	5		1		1
digestive system	1	31	26	1	3		2
urinary and genital system		10	9		1		
locomotive system							
integumentary system	1	10	11				
Non-malignant tumors and cysts							
Wounds, injuries, and accidents		24	22		1		1
Total	3	116	104	2	9		4

Ashuelot, 3d rate. Iron; paddle; 786 tons.

[Employed during the year on the Asiatic Station. Average number of ship's company, 141; total sick days, 1,288; deaths, 0; ratio per thousand of cases treated to effectives, 1,099 +; ratio per thousand of cases treated to effectives, 1876, 1,184 +.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		31	27	1			1
Enthetic	1	24	22		3		
Dietic		1	1				
Diathetic		15	13		2		
Developmental							
Tubercular							
Parasitic		1	1				
Of the nervous system		4	3		1		
eye		6	6				
ear							
teeth							
circulatory system							
respiratory system		8	6		1		1
digestive system		31	29		2		
urinary and genital system		8	8				
locomotive system							
integumentary system	1	4	5				
Non-malignant tumors and cysts							
Wounds, injuries, and accidents		20	18		1		1
Total	2	153	139	1	12		3

Alert, 3d rate. Iron; screw; 541 tons.

[Employed during the year on the Asiatic Station. Average number of ship's company, 121 +; total sick-days, 1,297; deaths, 2; ratio per thousand of cases treated to effectives, 1,162 +; ratio per thousand of cases treated to effectives, 1876, 813.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		11	9		2		
Enthetic	1	9	6		4		
Dietic		3	3				
Diathetic	1	18	14		5		
Developmental							
Tubercular							
Parasitic							
Of the nervous system	1	5	5		1		
eye		3	3				
ear							
teeth							
circulatory system		1	1				
respiratory system	1	8	6		1		2
digestive system	1	28	29				
urinary and genital system		3	3				
locomotive system							
integumentary system		4	4				
Non-malignant tumors and cysts							
Wounds, injuries, and accidents		43	35		6	2	
Total	5	136	118		19	*2	2

* One fracture of cranium; one pistol-shot wound of head.

Ranger, 3d rate. Iron; screw; 541 tons.

[Employed during the year on the Asiatic Station. Average number of ship's company, 144; total sick-days, 1,341; deaths, 2; ratio per thousand of cases treated to effectives, 1,171 +; ratio per thousand of cases treated to effectives, 1876, 14 +.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		20	13		4	2	1
Enthetic		5	5				
Dietic		3	3				
Diathetic		12	8		4		
Developmental							
Tubercular							
Parasitic							
Of the nervous system		13	9		4		
eye		1		1			
ear		2	2				
teeth							
circulatory system		1			1		
respiratory system		27	23		4		
digestive system		35	34		1		
urinary and genital system		3	3				
locomotive system		2	2				
integumentary system		21	21				
Non-malignant tumors and cysts							
Wounds, injuries, and accidents		24	21		2		1
Total		169	144	1	20	2	2

Tantic, 3d rate. Wood; screw; 410 tons.

[Employed during the first and second quarters 1877 on Asiatic Station and *en route* home via the Cape of Good Hope, 181 days. Average number of ship's company, 84; total sick-days, 462; deaths, 2; ratio per thousand of cases treated to effectives, 488+; ratio per thousand of cases treated to effectives, 1876, 1,637+.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		4	4				
Enthetic		2	2				
Dietic							
Diathetic		1	1				
Developmental							
Tubercular							
Parasitic		1	1				
Of the nervous system.			2				
eye		1	1				
ear							
teeth							
circulatory system							
respiratory system		3	2			1	
digestive system	2	7	8			1	
urinary and genital system		2	1	1			
locomotive system		2	1	1			
integumentary system		7	7				
Non-malignant tumors and cysts.							
Wounds, injuries, and accidents		7	7				
Total	2	39	37	2		*2	

* One, croupous pneumonia; one, cancer of rectum.

Palos, 4th rate. Iron; screw; 306 tons.

[Employed during the year on the Asiatic Station. Average number of ship's company, 47; total sick-days, 139; deaths, 1; ratio per thousand of cases treated to effectives, 510+; ratio per thousand of cases treated to effectives, 1876, 1,260 -.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		2	1			1	
Enthetic		1	1				
Dietic		3	3				
Diathetic							
Developmental							
Tubercular							
Parasitic							
Of the nervous system.							
eye							
ear							
teeth							
circulatory system							
respiratory system		2	2				
digestive system	1	9	9		1		
urinary and genital system		1	1				
locomotive system		1	1				
integumentary system		1	1				
Non-malignant tumors and cysts.							
Wounds, injuries, and accidents		3	3				
Total	1	23	22		1	*1	

* Febris remittens.

SPECIAL SERVICE.

During the year 1877 the vessels employed on special service were: Michigan, Tallapoosa, Gettysburg, Rio Bravo, Guard, and Portsmouth.

Nothing special is to be observed beyond the determination of the disease-rates of these vessels.

The usual tables are appended.

The death was from gun shot wound.

First quarter, 1877. Special service.

[Aggregate: Total number of ships' companies, 245; total number of sick-days, 363; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		10	9				1
Enthetic		3	3				
Dietic		2	2				
Diathetic	2	3	4		1		
Developmental							
Tubercular							
Parasitic							
Of the nervous system		1	1				
eye							
ear		1					1
teeth							
circulatory system		1	1				
respiratory system		10	8		2		
digestive system		12	10		1		1
urinary and genital system		1					1
locomotive system		1	1				
integumentary system	1	3	3				1
Non-malignant tumors and cysts		1	1				
Wounds, injuries, and accidents	1	11	12				
Total	4	60	55		4		5

Second quarter, 1877. Special service.

[Aggregate: Total number of ships' companies, 251; total number of sick-days, 316; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	1	9	9		1		
Enthetic		8	6		1		1
Dietic							
Diathetic		2	2				
Developmental							
Tubercular							
Parasitic							
Of the nervous system		4	4				
eye							
ear	1		1				
teeth							
circulatory system							
respiratory system		5	4		1		
digestive system	1	15	15				1
urinary and genital system	1	3	4				
locomotive system							
integumentary system	1	10	10				1
Non-malignant tumors and cysts							
Wounds, injuries, and accidents		11	10				1
Total	5	67	65		3		4

Third quarter, 1877. Special service.

[Aggregate: Total number of ships' companies, 354; total number of sick-days, 615; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		15	14		1		
Enthetic	1	1	0		1		1
Dietic		5	1				
Diathetic		5	5				
Developmental							
Tubercular							
Parasitic							
Of the nervous system		8	7		2		
eye							
ear							
teeth		1	1				
circulatory system		10	6		1		
respiratory system		14	13		2		3
digestive system	1	2	2				
urinary and genital system							
locomotive system							
integumentary system	1	11	12				
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	1	10	10				1
Total	4	85	77		7		5

Fourth quarter, 1877. Special service.

[Aggregate: Total number of ships' companies, 545; total number of sick-days, 751; deaths, 1.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		18	18				
Enthetic	1	8	6		2		1
Dietic		5	4				
Diathetic		10	5		2		2
Developmental							
Tubercular							
Parasitic							
Of the nervous system		5	5				
eye							
ear							
teeth		1	1				
circulatory system		2	1		1		
respiratory system	3	17	17		1		2
digestive system		13	9		3		1
urinary and genital system		3	2		1		
locomotive system		1	1		1		
integumentary system		12	12				
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	1	22	22			*1	
Total	5	117	103		12	1	6

* Vul. sclopet. Murdered on shore.

Special service.

AGGREGATE, 1877.

[Average number of ships' companies, 348 +; total sick days, 2,045; deaths, 1; ratio per thousand of cases treated to effectives, 972 +, 860 + in 1876.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		52	50		2		
Enthetic		26	21		4		1
Dietic		8	7		1		
Diathetic	2	20	16		4		2
Developmental							
Tubercular							
Parasitic							
Of the nervous system		18	17		1		
eye		1	1				
ear							
teeth		2	2				
circulatory system		4	2		2		
respiratory system		42	35		5		
digestive system		54	47		6		1
urinary and genital system		9	8		1		
locomotive system		2	2				
integumentary system	1	36	37				
Non-malignant tumors and cysts		1	1				
Wounds, injuries, and accidents	1	54	54			1	
Total	4	329	300		26	1	6

Michigan, 3d rate. Iron; paddle; 450 tons.

[Employed on the lakes. Average number of ship's company, 100; total sick-days, 112; deaths, 0; ratio per thousand of cases treated to effectives, 270; ratio per thousand of cases treated to effectives in 1876, 1,093.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		7	7				
Enthetic							
Dietic							
Diathetic		1	1				
Developmental							
Tubercular							
Parasitic							
Of the nervous system		2	2				
eye							
ear							
teeth		1	1				
circulatory system							
respiratory system		9	9				
digestive system		3	3				
urinary and genital system		1	1				
locomotive system							
integumentary system		1	1				
Non-malignant tumors and cysts							
Wounds, injuries, and accidents		2	2				
Total		27	27				

Tallapoosa, 4th rate. Wood; paddle; 650 tons.

[Employed on the North Atlantic Station during the year. Average number of ship's company, 367; total sick-days, 100; deaths, 0; ratio per thousand of cases treated to effectives, 640; ratio per thousand of cases treated to effectives in 1876, 830.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		10	8		2		
Enthetic		9	5		4		
Dietic		12	12				
Diathetic		3	3		2		
Developmental							
Tubercular							
Parasitic							
Of the nervous system		4	3		1		
eye							
ear							
teeth							
circulatory system		1			1		
respiratory system		6	2		4		
digestive system		13	8		5		
urinary and genital system		1					
locomotive system							
integumentary system		2	2				
Non-malignant tumors and cysts		1	11	12			
Wounds, injuries, and accidents							
Total	1	63	45		19		

Gettysburg, 4th rate. Iron; paddle; 518 tons.

[Employed on special service on the European Station. Average number of ship's company, 100+; total sick-days, 835; deaths, 0; ratio per thousand of cases treated to effectives, 1,296+; ratio per thousand of cases treated to effectives in 1876, 1,041+.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		16	16				
Enthetic		7	7				
Dietic	2	10	10		1		1
Diathetic							
Developmental							
Tubercular							
Parasitic							
Of the nervous system		5	5				
eye							
ear		1	1				
teeth		1	1				
circulatory system		2	2				
respiratory system		20	18		1		1
digestive system		29	29				
urinary and genital system		5	5				
locomotive system							
integumentary system	1	15	16				
Non-malignant tumors and cysts							
Wounds, injuries, and accidents		16	16				
Total	3	127	126		2		2

Rio Bravo, 4th rate. Paddle; 325 tons.

[Stationed at Brownsville, Tex. Average number of ship's company, 44+; total sick-days, 634; deaths, 1; ratio per thousand of cases treated to effectives, 1,452+; ratio per thousand of cases treated to effectives, 1876, 1,591+.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		14	14				
Enthetic		7	6				1
Dietic		4	4				
Diathetic		2	2				
Developmental							
Tubercular							
Parasitic							
Of the nervous system		3	3				
eye							
ear							
teeth							
circulatory system							
respiratory system		3	3				
digestive system		3	3				
urinary and genital system		12	12				
locomotive system		12	12				
integumentary system		14	14				
Non-malignant tumors and cysts		1	1				
Wounds, injuries, and accidents		11	10			1	
Total		66	64			1	1

Vul. sclop. Murdered on shore.

Guard, 4th rate. Wood; sails; 925 tons.

[Engaged during the fourth quarter 1877 on surveying duty in European waters (92 days). Average number ship's company, 98; total sick-days, 87; deaths, 0; ratio per thousand of cases treated to effectives.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		2	2				
Enthetic		3	3				
Dietic		1			1		
Diathetic							
Developmental							
Tubercular							
Parasitic							
Of the nervous system							
eye							
ear							
teeth							
circulatory system							
respiratory system		2	2				
digestive system		3	2		1		
urinary and genital system		1			1		
locomotive system							
integumentary system							
Non-malignant tumors and cysts							
Wounds, injuries, and accidents		5	5				
Total		17	14		3		

Portsmouth, 3d rate. Wood; sails; 846 tons.

[During the fourth quarter 1877 (83 days), was *en route* from California to Washington. Average number of ship's company, 96; total sick-days, 110; deaths, 0; ratio per thousand of cases treated to effectives, 302+.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		3	3				
Enthetic							
Dietic		2	1		1		
Diathetic		1					1
Developmental							
Tubercular							
Parasitic							
Of the nervous system		4	4				
eye							
ear							
teeth							
circulatory system		1			1		
respiratory system		2	1				1
digestive system		3	2				1
urinary and genital system							
locomotive system							
integumentary system		4	4				
Non-malignant tumors and cysts							
Wounds, injuries, and accidents		9	9				
Total		29	24		2		3

SCHOOL AND PRACTICE SHIPS.

The vessels employed in this service were the Constitution, Minnesota, Constellation, Saratoga, Supply, and Mayflower.

The usual tables are appended.

The deaths were one from rupture of the heart, and one from drowning.

During the first quarter an epidemic of cynanche parotidæa, occurred on the Minnesota at New York numbering 10 recorded cases; no history of the epidemic has been received. At the same time the Trenton was affected as has been mentioned hereinbefore.

First quarter, 1877. Training and practice ships.

- [Aggregate: Total number of ships' companies, 493; total number of sick-days, 763; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		5	4		1		
Enthetic	1	3	4				
Dietic		1	1				
Diathetic	1	4	3		1		1
Developmental							
Tubercular							
Parasitic							
Of the nervous system		2	2				
eye							
ear							
teeth							
circulatory system							
respiratory system		19	16		1		2
digestive system		32	28		2		2
urinary and genital system		1					1
locomotive system							
integumentary system	2	13	13	1			1
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	1	13	13				1
Total	5	93	84	1	5		8

Second quarter, 1877. Training and practice ships.

- [Aggregate: Total number of ships' companies, 1,117; total number of sick-days, 938; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		14	12		1		1
Enthetic		8	3				
Dietic							
Diathetic	1	11	10		2		
Developmental							
Tubercular							
Parasitic							
Of the nervous system		10	9		1		
eye							
ear		1	1				
teeth							
circulatory system							
respiratory system	2	17	17		2		
digestive system	2	21	18				
urinary and genital system	1	4	3				
locomotive system		1					
integumentary system	1	14	14				1
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	1	49	38		4		8
Total	8	145	125		10		18

Third quarter, 1877. Training and practice ships.

[Aggregate: Total number of ships' companies, 1,453; total number of sick-days, 1,826; deaths, 1.] •

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	1	19	20				
Enthetic		8	7		1		
Dietic		2	1		1		
Diathetic		12	9		2		1
Developmental							
Tubercular							
Parasitic							
Of the nervous system		15	11	1	3		
eye		18	18				
ear		2	1				1
teeth							
circulatory system		1			1		
respiratory system		14	12		2		
digestive system		5	35	37			
urinary and genital system		2	4	4	2		
locomotive system		1	3	4			
integumentary system		1	29	27	1		3
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	8	80	74	1	3	*1	9
Total	18	242	225	2	19	1	18

* Drowned.

Fourth quarter, 1877. Training and practice ships.

[Aggregate: Total number of ships' companies, 1,004; total number of sick-days, 1,219; deaths, 1.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		13	10		2		1
Enthetic		5	2		2		1
Dietic		2	2				
Diathetic	1	6	5	1	1		
Developmental							
Tubercular							
Parasitic							
Of the nervous system		6	5	1			
eye		5	2		3		
ear	1	1	1	1			
teeth							
circulatory system		4		1	2	*1	
respiratory system		12	11				1
digestive system		12	9		2		1
urinary and genital system		1			1		
locomotive system		2	2				1
integumentary system		2	17	18			1
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	9	48	48	1	4		4
Total	13	136	116	5	17	1	10

* Rupture of heart.

Training and practice ships.

AGGREGATE, 1877.

[Average number of ships' companies, 1,014; total sick-days, 4,746; deaths, 2; ratio per thousand of cases treated to effectives, 612+; ratio per thousand of cases treated to effectives, 1876, 345+.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		51	46		4		1
Enthetic	1	19	16		3		1
Dietic		5	4		1		
Diathetic	1	33	27	1	6		
Developmental							
Tubercular							
Parasitic							
Of the nervous system		33	27	2	4		
eye		23	20		3		
ear		4	3	1			
teeth							
circulatory system		5		1	3	*1	
respiratory system		62	56		5		1
digestive system		100	92		7		1
urinary and genital system		10	7		3		
locomotive system		7	6				1
integumentary system	2	73	72	1	1		1
Non-malignant tumors and cysts		1	1				
Wounds, injuries, and accidents	1	190	173	2	11	†1	4
Total	5	616	530	8	31	2	10

* Rupture of heart.

† Drowned.

Constitution, 3d rate. Wood; sails; 1,335 tons.

[Employed as training-ship at Philadelphia for 333 days of 1877. Average number of ship's company, 203; total sick-days, 1,131; deaths, 0; ratio per thousand of cases treated to effectives, 846+.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		22	22				
Enthetic		4	2		2		
Dietic		1	2				1
Diathetic		8	8				
Developmental							
Tubercular							
Parasitic							
Of the nervous system		5	4		1		
eye		6	5		1		
ear		2	1				1
teeth							
circulatory system							
respiratory system		18	17		1		
digestive system		18	18				
urinary and genital system		2	2				
locomotive system		4	3				1
integumentary system		30	30				
Non-malignant tumors and cysts							
Wounds, injuries, and accidents		52	51				1
Total		172	163		5		4

Minnesota, 1st rate. Wood; screw; 3,000 tons.

[Employed as training-ship at New York, N. Y. Average number of ship's company, 401; total sick days, 1,799; deaths, 1; ratio per thousand of cases treated to effectives, 515; ratio per thousand of cases treated to effectives in 1876, 365 +.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		15	11		3		1
Enthetic	1	6	6				1
Dietic		1	1				
Diathetic	1	12	7	1	5		
Developmental							
Tubercular							
Parasitic							
Of the nervous system		10	8	1	1		
eye		2	1		1		
ear		2	1	1	1		
teeth							
circulatory system		2		1		1	
respiratory system		22	19		2		1
digestive system		45	40		4		1
urinary and genital system		2	2				
locomotive system		2	2				
integumentary system	2	20	20	1			1
Non-malignant tumors and cysts							
Wounds, injuries, and accidents	1	61	57	1	3		1
Total	5	202	175	6	19	*1	6

* Rupture of heart.

Mayflower, 4th rate. Screw; 306 tons.

[Was employed for 182 days (second and third quarters), in 1877, as a practice-vessel, with cadet engineers. Average number of ship's company, 36; total sick-days, 50; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic							
Enthetic							
Dietic							
Diathetic							
Developmental							
Tubercular							
Parasitic							
Of the nervous system		1	1				
eye							
ear							
teeth							
circulatory system							
respiratory system		1			1		
digestive system	1	8	9				
urinary and genital system							
locomotive system							
integumentary system							
Non-malignant tumors and cysts							
Wounds, injuries, and accidents		3	3				
Total	1	13	12		1		

Saratoga, 4th rate. Wood; sails; 757 tons.

[Employed for 225 days (part of second and all of third and fourth quarters) as training-ship at Boston and Norfolk. Average number of ship's company, 204½; total sick-days, 717; deaths, 0; ratio per thousand of cases treated to effectives.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic.....		7	6		1		
Enthetic.....		4	4				
Dietic.....							
Diathetic.....		6	6				
Developmental.....							
Tubercular.....							
Parasitic.....							
Of the nervous system.....		3	2	1			
eye.....		1			1		
ear.....							
teeth.....							
circulatory system.....		3			3		
respiratory system.....		8	8				
digestive system.....		11	10		1		
urinary and genital system.....		4	2		2		
locomotive system.....							
integumentary system.....		4	4				
Non-malignant tumors and cysts.....		1	1				
Wounds, injuries, and accidents.....		35	26		7		2
Total.....		87	69	1	15		2

Supply, 4th rate. Wood; sails; 547 tons.

[Employed for 145 days (second and third quarters), 1877, as practice-ship. Average number of ship's company, 170; total sick-days, 205; deaths, 1; ratio per thousand of cases treated to effectives, 200; ratio per thousand of cases treated to effectives in 1876, 226.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic.....		2	2				
Enthetic.....							
Dietic.....		2	1		1		
Diathetic.....							
Developmental.....							
Tubercular.....							
Parasitic.....							
Of the nervous system.....		5	3		2		
eye.....							
ear.....							
teeth.....							
circulatory system.....							
respiratory system.....		2	2				
digestive system.....							
urinary and genital system.....							
locomotive system.....		9	9				
integumentary system.....							
Non-malignant tumors and cysts.....							
Wounds, injuries, and accidents.....		14	18			*1	
Total.....		34	30		3	1	

* Drowned.

Constellation, 3d rate. Wood; sails; 1,236 tons.

[Was employed as practice-ship for 112 days (second and third quarters) in 1877. The average ship's company, 300; total sick-days, 667; deaths, 0; ratio per thousand of cases treated to effectives, 360.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic.....		5	5				
Enthetic.....		6	5		1		
Dietic.....							
Diathetic.....		7	6		1		
Developmental.....							
Tubercular.....							
Parasitic.....							
Of the nervous system.....		9	9				
eye.....		14	14				
ear.....							
teeth.....							
circulatory system.....							
respiratory system.....		13	12		1		
digestive system.....		16	14		2		
urinary and genital system.....		2	1		1		
locomotive system.....		1	1				
integumentary system.....		10	9		1		
Non-malignant tumors and cysts.....							
Wounds, injuries, and accidents.....		25	23	1	1		
Total.....		108	99	1	8		

COAST SURVEY.

The vessels employed on the Coast Survey Service from which returns have been received were the *Gedney* and *Bache*.

These vessels are officered and manned from the Navy.

The *Gedney* was employed on the coast of Florida, and the *Bache* was at the navy-yard, Washington.

The usual tables are appended.

First quarter, 1877. Coast Survey.

[Aggregate: Total number of ships' companies, 33; total number of sick-days, 25; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic.....							
Enthetic.....							
Dietic.....							
Diathetic.....							
Developmental.....							
Tubercular.....							
Parasitic.....							
Of the nervous system.....							
eye.....							
ear.....							
teeth.....							
circulatory system.....							
respiratory system.....		1	1				
digestive system.....		1	1				
urinary and genital system.....							
locomotive system.....							
integumentary system.....		3	3				
Non-malignant tumors and cysts.....							
Wounds, injuries, and accidents.....							
Total.....		5	5				

Second quarter, 1877. Coast Survey.

[Aggregate: Total number of ships' companies, 59; total sick-days, 62; deaths, 0.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		2	2				
Enthetic		1	1				
Dietic							
Diathetic		6	6				
Developmental							
Tubercular							
Parasitic							
Of the nervous system		1	1				
eye		1	1				
ear							
teeth							
circulatory system							
respiratory system		2	2				
digestive system		2	2				
urinary and genital system							
locomotive system							
integumentary system		1	1				
Non-malignant tumors and cysts							
Wounds, injuries, and cysts							
Total		16	16				

Coast Survey.

AGGREGATE, 1877.

[Average number of ships' companies, 30 +; total sick-days, 135; deaths, 0; ratio per thousand of cases treated to effectives, 692; ratio per thousand of cases treated to effectives, 1,036 in 1876.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		2	2				
Enthetic		1	1				
Dietic							
Diathetic		6	6				
Developmental							
Tubercular							
Parasitic							
Of the nervous system		1	1				
eye		1	1				
ear							
teeth							
circulatory system							
respiratory system		3	3				
digestive system		3	3				
urinary and genital system							
locomotive system							
integumentary system		4	4				
Non-malignant tumors and cysts							
Wounds, injuries, and accidents							
Total		21	21				

Gedney, Coast Survey steamer.

[During the first and second quarters (181 days) was employed near Saint Andrew's, Fla. Average number of ship's company, 32 +; total sick-days, 98; deaths, 0; ratio per thousand of cases treated to effectives, 333 +; ratio per thousand of cases treated to effectives, 1876, 300 +.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic		2	2				
Euthetic		1	1				
Dietic							
Diathetic		5	5				
Developmental							
Tubercular							
Parasitic							
Of the nervous system		1	1				
eye							
ear							
teeth							
circulatory system							
respiratory system		3	3				
digestive system		2	2				
urinary and genital system							
locomotive system							
integumentary system		4	4				
Non-malignant tumors and cysts							
Wounds, injuries, and accidents							
Total		18	18				

Bache, Coast Survey.

[During the second quarter, 1877, was employed at Washington. Average number of ship's company, —; total sick-days, —; deaths, —; ratio per thousand of cases treated to effectives, 81 +; ratio per thousand of cases treated to effectives, 1876, 677 +.]

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic							
Euthetic							
Dietic		1	1				
Diathetic							
Developmental							
Tubercular							
Parasitic							
Of the nervous system							
eye		1	1				
ear							
teeth							
circulatory system							
respiratory system							
digestive system		1	1				
urinary and genital system							
locomotive system							
integumentary system							
Non-malignant tumors and cysts							
Wounds, injuries, and accidents							
Total		3	3				

RÉSUMÉ.

The total sick-rate for the year was 891 + per thousand of effectives; that of the previous year was 700 +.

The mortality from disease was 18. The mortality from wounds, injuries, and accidents was 107; 103 from drowning, 2 from fracture of the cranium, 2 from gunshot wounds.

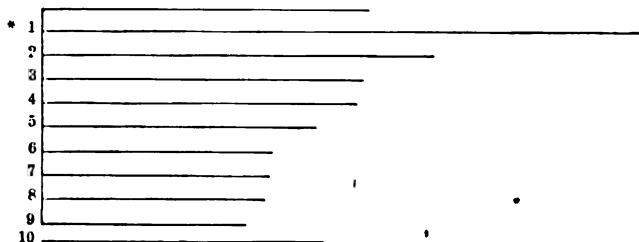
A general aggregate of the total diseases and casualties, with a graphic representation of the sick-rate of the various stations and a station map suggesting attention to disease zones, are herewith appended.

General aggregate for the year 1877.

[Average number of men, 7,461; total sick-days, 57,936; deaths, 125; ratio per thousand of cases treated to effectives, 891 +].

Diseases.	Remaining.	Admitted.	Discharged.	Discharged from service.	Transferred.	Died.	Remaining.
Miasmatic	8	798	744	2	40	5	15
Enthetic	29	498	439	2	69		17
Dietic	1	141	137	1	2		2
Diathetic	16	493	404	2	94		9
Developmental		3			2		1
Tubercular		2			2		
Parasitic		10	10				
Of the nervous system	8	305	268	5	38		2
eye		116	102	2	9		3
ear		37	28	2	4		
teeth		8	8				
circulatory system		73	24	2	42	5	
respiratory system	10	619	506	4	84	6	19
digestive system	11	1,026	964	2	60	2	9
urinary and genital system	4	201	168		33		4
locomotive system	1	35	25		10		1
integumentary system	18	769	739	4	28		16
Non-malignant tumors and cysts		13	13				
Wounds, injuries, and accidents	23	1,475	1,296	5	65	107	2
Total	129	6,622	5,875	33	592	125	18

* One case drowned.

Average number of men.

Graphic representation of the health of the Navy for the year 1877, as determined by the sick-rate per thousand, i. e., the ratio per thousand of cases treated to effectives.

* 1. South Pacific Station	1,948 +
2. Asiatic	1,230 +
3. European	984 +
4. Special service	972 +
5. North Pacific	839 +
6. North Atlantic	708 +
7. South Atlantic	687 +
8. Coast Survey	682 +
9. School and training vessels	612 +
10. Sick-rate for the year	904 +

A.—Annual statement compiled from sick-reports from naval stations and vessels in commission on home and foreign service for the year ending December 31, 1877.

	Average number on board in 1877.	Remaining sick December 31, 1877a.	Admitted in 1877.	Discharged in 1877.	Died in 1877.	Total treated in 1877.	Remaining sick December 31, 1877.	Percentage of deaths to number treated.
<i>Hospitals.</i>								
Chelsea, Mass.		15	66	51	3	81	27	
Brooklyn, N. Y.		33	196	170	11	229	48	
Philadelphia, Pa.		20	98	81	11	118	26	
Washington, D. C.		9	130	119	7	139	13	
Norfolk, Va.		26	279	248	11	305	46	
Pensacola, Fla.		2	20	18		22	4	
Mare Island, Cal.		43	117	111	8	160	41	
Yokohama, Japan		7	68	69	1	75	5	
Total		155	974	867	52	1,129	210	.04
<i>Navy-yards and stations.</i>								
Portsmouth, N. H.		3	79	78	1	82	3	
Boston, Mass.		4	166	167		170	3	
Brooklyn, N. Y.			55	55		55		
League Island, Pa.		1	16	16	1	17		
Washington, D. C.		3	206	206		209	3	
Norfolk, Va.		3	150	150	1	153	2	
Pensacola, Fla.		2	20	22		22		
Mare Island, Cal.		2	39	38	1	41	2	
Torpedo Station, Newport		2	40	42		42		
Naval Academy		11	1,020	1,011	1	1,031	19	
Marine Barracks, N. Y.		12	225	228		237	9	
Marine Barracks, Washington.			227	225	2	227		
Total		43	2,243	2,238	7	2,286	41	.003
<i>Receiving-ships.</i>								
Boston, Mass.	210	2	83	81	1	85	3	
Brooklyn, N. Y.	403	3	170	167	1	173	5	
League Island, Pa.	175		72	68	1	72	3	
Washington, D. C.	100		102	99	2	102	1	
Norfolk, Va.	165		145	142		145	3	
Mare Island, Cal.	95		46	41	2	46	3	
Total	1,148	5	618	598	7	623	18	.01

SUMMARY OF VESSELS IN COMMISSION.

Average number of persons on board in 1877	7,461
Remaining sick December 31, 1877	129
Admitted to sick-list in 1877	6,622
Discharged from sick-list in 1877	6,500
Died in 1877	125
Total treated in 1877	6,748
Remaining sick December 31, 1877	126
Proportion of cases to number of persons on board	.90
Proportion of deaths to number of persons on board	.016
Proportion of deaths to number of cases treated	.018

RECAPITULATION.

	Average number of officers and men on board in 1877.	Remaining sick December 31, 1876.	Admitted in 1877.	Discharged in 1877.	Died in 1877.	Total treated in 1877.	Remaining sick December 31, 1877.	Proportion of cases to number of persons on board.	Proportion of deaths to number of persons on board.	Proportion of deaths to number of persons treated.
Naval hospitals		155	974	867	52	1,129	210			.04
Yards and stations		43	2,243	2,238	7	2,286	41			.003
Receiving-ships	1,148	5	618	598	7	623	18	.50	.007	.01
Vessels in commission at sea	7,461	129	6,622	6,500	125	6,751	126	.90	.016	.018
Total	8,609	332	10,457	10,203	191	10,789	395	1.02	.02	.02

At the close of the year 1876, there remained under treatment 332 cases; during the year 1877 there occurred 10,457 cases of disease, injury, &c., making a total of 10,789 cases treated during the year; of which number 191 died and 10,203 were returned to duty or discharged the service, leaving 395 cases under treatment at the close of the year 1877.

The average strength of the Navy (officers, seamen, marines, engineer service, and Coast Survey included) for the year 1877, as near as can be ascertained, was 8,609. The proportion of cases admitted to the whole number of persons in the service, was about 1.02, or each person was on the sick-list 1.02 times during the year. The proportion of deaths to the whole number of persons in the service was .02, and the proportion of deaths to the number of cases treated was .02.

Of the 191 deaths during the year, 98 were from drowning from the wreck of United States steamer Huron, November 24.

The total number of deaths from all causes reported to the Navy Department, from October 1, 1877, to October 1, 1878, was 197.

INSANE OF THE NAVY.

On the 30th September, 1877, there remained under treatment in the Government Hospital for the Insane 2 commanders, 2 lieutenant-commanders, 1 assistant engineer, 1 late ensign, 9 seamen, 1 ordinary seaman, 2 ordinary seamen extra, 1 seaman extra fireman, 1 late seaman, 8 landsmen, 7 marines, 3 beneficiaries, 1 second-class boy; total 39

Admitted during the year ending September 30, 1878:

1 assistant engineer retired, 1 seaman, 1 ordinary seaman, 1 landsman, 1 beneficiary, 4 marines; total 9

Total number under treatment during the year 48

Discharged during the year:

By death, 1 beneficiary, 1 marine 2
By recovery, 1 landsman 1
By improvement, 1 landsman, 1 marine 2

Total discharged 5

Remaining at the end of the year:

2 commanders, 2 lieutenant-commanders, 2 first assistant engineers, 1 late ensign, 10 seamen, 2 ordinary seamen, 2 ordinary seamen extra, 1 seaman extra fireman, 1 late seaman, 7 landsmen, 9 marines, 3 beneficiaries, 1 second-class boy; total 43

Summary of prevalent forms of disease on home and foreign service for the year ending December 31, 1877.

	North Atlantic.		South Atlantic.		European.		Pacific.		Asiatic.		Special service.		School and practice.		Coast Survey.		Total.	
	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.
Aggregate number of men.....	1,764		539		1,089		830		1,447		348		1,014		30		7,461	
Class I.—Zymotic diseases:																		
Order I.—Miasmatic diseases:																		
Catarrhus epidemicus.....	8				1				3								11	7
Cholera communis.....					23				6				2				25	1
Cynanche parotidea.....																	1	1
Dysentery.....																	1	1
Diphtheria.....																	11	1
Erysipelas.....	1	1	4		2		1		1								7	3
Febris continua simplex.....	6		16		45		3		9		11		6				96	7
Febris enterica.....	3				1		1		2								3	3
Febris flava.....																	3	3
Febris intermittens.....																	460	3
Febris recidiva.....	105		42		39		78		126		32		36		2		3	3
Febris remittens.....					1						2						139	6
Morbili.....	26	3	1		7		80		23	1							3	2
Rubeola.....	6										3						6	3
Scarlatina.....																	1	1
Varicella.....	1												1				2	2
Varicella.....					2				2								3	3
Varicellæ.....									5				1				5	5
Varicellæ.....																	7	7
Febricula.....																	2	2
Feb. chagres.....	7																11	11
Feb. incerta.....	2				6								5					
Vaccinia.....																		
Order II.—Euthetic diseases:																		
Syphilis primitiva.....	49		24		30		23		63		11		7				207	7
Syphilis consecutiva.....	24		18		18		12		54		6						135	135
Gonorrhœa.....	43		14		21		35		49		8		10		1		181	181
Ophthalmia gonorrhœica.....									1								1	1
Malautia.....					1												1	1
Bubo.....					1						1						1	1
Verruæ.....																		

Summary of prevalent forms of disease on home and foreign service for the year ending December 31, 1877—Continued.

	North Atlantic.		South Atlantic.		European.		Pacific.		Asiatic.		Special service.		School and practice.		Coast Survey.		Total.	
	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.
Class I.—Zymotic diseases.—Continued.																		
Order II.—Dietic diseases:																		
Alcoholism.....	10		9		14		54		12		6		4		109		109	
Infantile tremors.....	4		1		3		1		6		1		1		17		17	
Rheumatic tremors.....			1		1				13		1				16		16	
Class II.—Constitutional diseases:																		
Order I.—Diathetic diseases:																		
Adynamia.....	19		6		21		10		33		7		7		103		103	
Anemia.....	1						1		4				2		8		8	
Gargrena senilis.....			1												1		1	
Hypops.....											1							
Pedagra.....			4												6		6	
Rheumatismus acutus.....	40		19		22		29		85		12		17		228		228	
Rheumatismus chronicus.....	24		15		23		41		46				8		159		159	
Rheumatismus musculorum.....			1												1		1	
Anasarca.....	1														1		1	
Delirium.....																		
Order II.—Developmental diseases:																		
Degeneratio.....							1								1		1	
Order III.—Tubercular diseases:																		
Tuberculosis.....	2														2		2	
Class III.—Parasitic diseases:																		
Scabies.....			1						3						4		4	
Yemice.....	1		1		2				1						5		5	
Filaria medinensis.....	1														1		1	
Class IV.—Local diseases of the nervous system:																		
Order I.—Diseases of the nervous system:																		
Apoplexia.....			1						3						4		4	
Cephalalgia.....	6		4		20		1		14		8		11		64		64	
Sciatica.....	1												3		4		4	
Dementia.....					1		2		1				1		4		4	
Epilepsia.....	6		8		1		4		4		1		4		23		23	
Insulatio.....	7		1						9						16		16	
Irritatio spinalis.....			1				1								1		1	
Mania.....			1				2		1						3		3	

Melanobolia	1	1					1														9	1
Meningitis																					1	1
Myelitis	1																				160	1
Neuralgia	28	9		60			28				34										5	5
Paralysis		2		1																	2	2
Myalgia				2																	2	2
Lumbago																					2	2
Vertigo																					2	2
Heat exhaustion																					1	1
Torticollis																					2	2
Aphasia																					1	1
Insanity																					1	1
Order II.—Diseases of the eye:																						
Amurosis																					4	4
Cataracta																					1	1
Conjunctivitis	13	8		12			3														66	66
Ektasis lacrymalis				1			1														1	1
Scleroditis																					1	1
Iritis	3	4		1			3														14	14
Ophthalmia	1			1			1														20	20
Retinitis																					2	2
Retinitis																					2	2
Keratitis							1														3	3
Hordeolum							1														1	1
Ulcus corneæ																					1	1
Order III.—Diseases of the ear:																						
Otalgia	1																				8	8
Otitis	2	2					2														18	18
Otorrhœa	2						1														10	10
Surditas							1														1	1
Order IV.—Diseases of the teeth:																						
Dentalgia	1																					
Order V.—Diseases of the circulatory system:																						
Aneurysma	1	1					1														8	8
Angina pectoris																					4	4
Morbi valvularum cordis	4	1					1														1	1
Palpitatio	9	4					4														16	16
Percarditis	1	4		1			1														28	28
Phlebitis																					7	7
Varix																					1	1
Arterio-sclerosis	1						1														10	10
Angioloentitis																					1	1
Syncope																					1	1
Hyperemia																					1	1
Vertigo																					1	1
Rupture of heart																					1	1
Order VI.—Diseases of the respiratory system:																						
Apnœa																					1	1
Asthma	3																				1	1
Bronchitis acuta	86	10		31			2														11	11
Bronchitis chronica	16	1		1			15														167	167
Catarrhus	37	16		6			10														62	62
Hydrothorax	2	16		56			8														250	250
Laryngitis	1	2		2			24														2	2
																					1	1

Summary of prelatent forms of disease on home and foreign service for the year ending December 31, 1877—Continued.

	North Atlantic.		South Atlantic.		European.		Pacific.		Asiatic.		Special service.		School and practice.		Coast Survey.		Total.
	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.	
Class IV.—Local diseases—Continued.																	
Order VI.—Diseases of the respiratory system—Cont'd.																	
Pneumonia acuta	2																
Pneumonia chronica	14		3														
Pleuritis	9		9														
Pneumonia	6		4														
Hemoptysis																	
Empyema																	
Order VII.—Diseases of the digestive system:																	
Cholera morbus.	12		2		23		11		35		3		3		89		
Cirrhosis hepatis	12														2		
Colica	12		6		16		17		37		5		2		95		
Constipatio	5		2		2		3		15		2				31		
Diarrhoea acuta	45		17		62		43		130		1		28		347		
Diarrhoea chronica	6		1		3		3		5		1		1		17		
Dysenteria acuta	32		20		3		1		22		5		3		86		
Dysenteria chronica	4								3				1		8		
Dyspepsia	3		3		11		4		12		2		4		39		
Eutertia	1				1						1				3		
Fistula in ano			1						3		1				5		
Gastritis	6						9		3		1		1		19		
Hæmatomesis.	1				1		1		1		1				5		
Hæmorrhoids	14		11		9		7		11		1		2		55		
Hepatitis acuta	1								2						9		
Hepatitis chronica	2		1												3		
Icterus*	5		1		4		5				1				16		
Lithiasis																	
Pertinitis	2		1		6		6		3		7		8		83		
Pharyngitis									1				1				
Prolapsus ani	2																
Splenitis			3														
Stomatitis																	
Tonsillitis	14		17		22		13		39		3		30		138		
Gastralgia					6												
Parotiditis																	
Gastrodynia					1								2		3		
Parotitis					1										1		
Gastrodynia													10				

Order VIII.—Diseases of the urinary and genital system.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522
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Summary of prevalent forms of disease on home and foreign service for the year ending December 31, 1877—Continued.

	North Atlantic.		South Atlantic.		European.		Pacific.		Asiatic.		Special service.		Special and practice.		Coast Survey.		Total.	
	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.	Cases treated.	Deaths.
Class IV.—Local diseases.—Continued.																		
Order X.—Diseases of the integumentary system.																		
Class V.—Non malignant tumors and cysts:																		
Chloasma.																		
Adenoma.									6		1		2				2	
Angelioma.					1												7	
Cystic sebaceous.								1									1	
Fibroma.	1																1	
Osteoma.					1												1	
Verruca.									1								1	
Bronchocoele.					1												1	
Class VI.—Violent diseases and deaths:																		
Order I.—Wounds, injuries, and accidents:																		
Abrasio.	11		6		10		9		24		2		8				70	
Ambustio.	7		6		4		9		13		2		9				50	
Concussio cerebri.	1										5						6	
Contusio.	52		43		62		58		108		20		61				404	
Fractura.	9		5		8		1		12		1		11				50	
Hernia.	11		13				1		6		1		9				41	
Luxatio.	4		3				4				4		2				17	
Strenua.	43		27		51		24		61		4		32				232	
Submersio.	100		1		2		1						1				105	
Vulnus contusum.	42		20		28		61		59		3		20				233	
Vulnus incisum.	20		18		15		16		26		6		16				116	
Vulnus laceratum.	6		6		28		19		20		6		10				95	
Vulnus punctum.	8		9		3		14		17		1		11				64	
Vulnus sclopetarium.	2				1		1		1		1		1				7	
Vulnus venenatum.	8				1		1		1								6	
Congestio cerebri.																	1	
Total.	1,240	103	655	3	1,083	4	1,007	3	1,781	9	331	1	621	2	21		5,748	125

No. 8.—BUREAU OF PROVISIONS AND CLOTHING.

NAVY DEPARTMENT,
BUREAU PROVISIONS AND CLOTHING,
Washington, October 31, 1878.

SIR: In accordance with instructions contained in your letter of the 22d instant, I have the honor to submit herewith estimates—marked A, B, C, D, and E—for the fiscal year ending June 30, 1880, together with schedules numbered 1 to 5, inclusive, and statement No. 6, pertaining to the operations of this bureau during the year ending June 30, 1878.

I respectfully renew the recommendation of my predecessor that assistant paymasters of the Navy be placed on the same footing as the assistant surgeons of the Navy are at present (per act of March 1, 1871), and be made eligible for promotion to the grade of passed assistant paymaster after three years' service.

Very respectfully, your obedient servant,

GEO. F. CUTTER,
Paymaster-General United States Navy.

HON. R. W. THOMPSON,
Secretary of the Navy, Washington, D. C.

*Estimates of appropriations required for the service of the fiscal year ending June 30, 1880,
by the Bureau of Provisions and Clothing.*

Detailed objects of expenditure, and explanations.	Estimated amount which will be re- quired for each detailed object of expenditure.	Amount appropri- ated for the cur- rent fiscal year ending June 30, 1879.
A.—EXPENSES OF THE BUREAU OF PROVISIONS AND CLOTHING.		
For salary of chief clerk, per act July 5, 1862 (12 Stat. at L., p. 511, sec. 3) ..	\$1,800 00	
For salary of one clerk of class four, per act July 23, 1866 (14 Stat. at L., p. 208, sec. 8) ..	1,800 00	
For salary of two clerks of class three, per act July 23, 1866 (14 Stat. at L., p. 208, sec. 8) ..	3,200 00	
For salary of two clerks of class two, per act July 23, 1866 (14 Stat. at L., p. 208, sec. 8) ..	2,800 00	
For salary of three clerks of class one, per act July 23, 1866 (14 Stat. at L., p. 208, sec. 8) ..	3,600 00	
For salary of messenger, per act June 19, 1878 (20 Stat. at L., p. 198) ..	720 00	
For salary of one laborer, per act June 19, 1878 (20 Stat. at L., p. 198) ..	660 00	
	14,580 00	\$14,580 00
B.—CONTINGENT EXPENSES OF THE BUREAU.		
For blank books, stationery, and miscellaneous items, per act June 19, 1878 (20 Stat. at L., p. 198) ..	400 00	400 00
C.—PROVISIONS FOR THE NAVY.		
For provisions for crew and marines; commuted rations for officers, crew, and marines; expenses of inspections and storehouses; and for water for ships, per act May 4, 1878 (20 Stat. at L., p. 53) ..	1,200,000 00	1,200,000 00
D.—CONTINGENT EXPENSES OF THE NAVY UNDER BUREAU OF PROVISIONS AND CLOTHING.		
For freight on shipments, candles, fuel, books and blanks, stationery, advertising and commissions on sales, postage, telegrams, express charges, tolls, ferrage, car-tickets, yeomen's stores, iron safes, newspapers, ice, and other expenses not enumerated, per act May 4, 1878 (20 Stat. at L., p. 53) ..	35,000 00	35,000 00

Estimates of appropriations required, &c.—Continued.

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Amount appropriated for the current fiscal year ending June 30, 1878.
E.—CIVIL ESTABLISHMENT.		
Navy-yard, Boston, Mass.:		
One writer to paymaster	\$1, 017 25	
One writer to inspector	1, 017 25	
Navy-yard, New York, N. Y.:		
One writer to inspector	1, 017 25	
One writer to paymaster	1, 017 25	
One writer to paymaster	939 00	
Navy-yard, League Island, Pa.:		
One writer to paymaster	1, 017 25	
Navy-yard, Washington, D. C.:		
One writer to paymaster	1, 300 00	
Navy-yard, Norfolk, Va.:		
One writer to paymaster	1, 017 25	
One writer to inspector	1, 017 25	
Navy-yard, Mare Island, Cal.:		
One writer to paymaster	1, 017 25	
One writer to inspector	1, 017 25	
	11, 394 25	

Schedule of proposals for fresh provisions, navy bread, baking, and water, received during the fiscal year ending June 30, 1878; the supplies to be delivered during the fiscal year 1878-'79.

Name.	Where to be delivered.	Fresh bread.	Fresh beef.	Vegetables.	Navy bread.	Baking.	Water.
		<i>Per pound.</i>	<i>Per pound.</i>	<i>Per pound.</i>	<i>Per pound.</i>	<i>Per bbl. of flour.</i>	<i>Per gallon.</i>
J. E. Chase*	Portsmouth, N. H.		\$0 06½	\$0 01			
C. L. Brown*	do	\$0 06*	07	02			
J. W. Hobbs*	Boston, Mass.		11	01½			
H. P. Stevens	do		11½	02½			
C. Flanders	do		11	03			
C. F. Austin & Co.*	do	06				\$1 75	
P. Morrison	New York, N. Y.		08½	02			
J. Hanley	do		07½	01½			
W. H. Clooner & Co.	do		07½	01			
J. J. Lyons	do		07½	01½			
Moses Straus	do		13½	02½			
L. J. Tormey*	do		07	01½			
J. C. De Trainet	do		06½	01			
J. Camper	do		12½	03½			
E. Bradley†	do		06	00½			
C. T. Goodwin & Son*	do					1 00	
O. Finnegan†	do	03½					
J. McNamara*	do	04					
F. Fruin	do	06½					
T. Bradley	League Island, Pa.	04½	09½	03½			
L. S. Borach*	do	04½	09½	03½			
I. S. Irvin & Son*	do					1 44	
J. T. Varnell*	Washington, D. C.		05½	01½			
J. G. Carroll	do		06½	01½			
M. H. Homiller	do		06	02			
W. S. Crown	do		04½	02½			
W. H. Robertson	do		06	02½			
W. E. Kimberly	do		07	02½			
B. Charlton*	do	04*				2 50	
J. D. Mason & Co.*	do					1 00	
C. Tyler	do					1 50	
J. F. Selts	do	04½					
W. F. Dann	Norfolk, Va.		06½	02			
I. Gutman	do		07	02			
J. E. Baum*	do		06½	01½			
Kimberly Bros.	do		07½	01½			
R. Searle	do		06½	01½			
F. Dusch†	do		06½	01½			
C. R. Robertson	do		07½	02½			
S. Westheimer	do		06½	01½			
C. Tyler*	do					1 49	
J. Reid & Co.	do	03½				1 75	
C. T. Cabler*	do	03½					
W. Clarke*	do						\$0 00½
Do.	Hampton Roads						00½
E. W. Baker	do						00½
Do.	Norfolk, Va.						00½
Benjamin Burr*	Port Royal, S. C.		14	03			00½
James Odell*	do	06½					
George Dick*	do						01½
J. Murphy	Pensacola, Fla.		08	03½			
J. S. Bell*	do		07	03			
M. White*	do	07					
J. O'Neal*	do				\$0 06½		
J. J. Philbrick*	Key West, Fla.		11	05			
G. W. Maslin*	do				07		
California Cracker Company*	Mare Island, Cal.				03½		
T. S. Chadbourne	do				03½		
D. T. Brown*	do	04½					
J. F. Tobin*	do	04½	08*	03½*			
A. Newman & Co.	do		08½	04			
O. H. Keyes	do		09	04			

* Contracts awarded.

† Failed to make contract.

: The bid of F. Dusch was withdrawn in favor of J. E. Baum.

Schedule of proposals for beef, pork, beans, and candles received during the fiscal year ending June 30, 1878; the supplies to be delivered at Boston, New York, and Norfolk, during the fiscal year 1877-78.

Name.	Beef.			Pork.			Beans.			Candles.		
	300 barrels, Boston.	600 barrels, New York.	650 barrels, Norfolk.	500 barrels, Boston.	300 barrels, New York.	850 barrels, Norfolk.	5,000 gallons, Boston.	15,000 gallons, New York.	10,000 gallons, Norfolk.	3,000 pounds, Boston.	5,000 pounds, New York.	10,000 pounds, Norfolk.
William Mathews.	Per bbl. \$18 27	Per bbl. \$17 77	Per bbl. \$18 77	Per bbl. \$14 47	Per bbl. \$14 23	Per bbl. \$15 23	Per gall. \$0 28 7/8	Per gall. \$0 27 1/8	Per gall. \$0 30 1/8	Per lb. *\$0 17 1/2	Per lb. *\$0 17 1/2	Per lb. *\$0 17 1/2
A. B. Raymond & Son*.												
Manhattan Oil Company*.												
C. E. Wallis.	17 75	*17 25	*18 25	14 50	14 00	15 00	24 1/2	23 1/2	24 1/2	10 1/2	10 1/2	10 1/2
Armour, Plankinton & Co*.	18 72	18 89		*12 80	*12 80		26	26		10 1/2	19 1/2	19 1/2
John Harrison.				15 79	14 89							
A. Gross & Co.				13 09	12 83							
De Witt Mathews.	114 28	*14 12										
Cyrus Dupee.				14 80	14 00	*14 85						
R. G. Mitchell & Co.					12 49							
H. K. & F. B. Thurber & Co*.					* 7 00							
Charles Rohe*.	22 80	22 00	22 35	14 80								
William B. Cragin.												
J. W. Roberts & Co.	15 29			14 22			26					
Haldwin, Farnum & Shapleigh*.	*14 89			14 64			25 1/2					
W. F. Allen & Co.									27 1/2			

* Contracts awarded.

† Failed to make contract.

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Schedule of proposals for 30,000 pounds of pickles, received during the fiscal year ending June 30, 1878.

Name.	Where to be delivered.	
	10,000 pounds, New York.	20,000 pounds, Norfolk.
	<i>Per pound.</i>	<i>Per pound.</i>
F. A. Waldner & Co.*	\$0 08½	\$0 08½
W. K. Lewis & Bros	09 10½	09 10½
J. W. Jones	13	13
F. Toehrenbuch & Co	09	09
William Underwood†	06 10½	06 10½

* Contract awarded.

† Bid informal.

Schedule of proposals for 60,000 pounds of tobacco, received during the fiscal year ending June 30, 1878.

Name.	Where to be delivered.	Price per per pound.
P. Lorillard & Co.*	New York	\$0 47½
P. H. Mayo & Bro	do	47½

* Contract awarded.

Proposals for eight sets of stationery, received during the fiscal year ending June 30, 1878.

Name.	Where to be delivered.	Total price.
E. M. Whitaker & Son	Washington, D. C	\$811 77
William H. Dempsey*	do	611 40

* Contract awarded.

Statement of contracts made by the Bureau of Provisions and Clothing, for and in behalf of the Navy Department, during the fiscal year ending June 30, 1878.

Name.	Date.	Articles contracted for.	Price.	Where to be delivered.
1877.				
Dick & Small	July 2	Water per gall	\$0 01½	Port Royal, S. C.
James Reid & Co.	July 3	Baking bread, per bbl. of flour	1 75	Norfolk, Va.
Benjamin Burr	July 5	Fresh beef per lb	12 ½	Port Royal, S. C.
Do.	July 5	Vegetables do.	03	Do.
James Odell	July 6	Fresh bread do.	06	Do.
John Stokell & Co.	July 10	Fresh beef do.	08	Portsmouth, N. H.
Do.	July 10	Vegetables do.	01½	Do.
Do.	July 10	Fresh bread do.	06	Do.
Henry McKenzie	July 11	do. do.	06	Pensacola, Fla.
James Murphy	July 11	Fresh beef do.	09½	Do.
Do.	July 11	Vegetables do.	05	Do.
J. O'Neal	July 12	Navy bread do.	05½	Do.
J. F. Tobin	July 18	Fresh bread do.	04½	Marine Island, Cal.
Do.	July 18	Fresh beef do.	07	Do.
Do.	July 18	Vegetables do.	03½	Do.
California Cracker Co.	July 19	Navy bread do.	03½	Do.
George W. Maslin	July 30	do. do.	06	Key West, Fla.
John J. Philbrick	July 30	Fresh beef do.	11	Do.
Do.	July 30	Vegetables do.	05	Do.
1878.				
Hunter, Walton & Co.	Jan. 12	Butter, 4,000 pounds . . . do.	42	New York, N. Y.
Do.	Jan. 12	Butter, 3,500 pounds . . . do.	43	Norfolk, Va.
F. A. Waidner & Co.	Jan. 14	Pickles, 10,000 pounds . . do.	08½	New York, N. Y.
Do.	Jan. 14	Pickles, 20,000 pounds . . do.	08½	Norfolk, Va.
S. R. Norris	Jan. 21	Butter, 4,000 pounds, patent packages . . . per lb	40	New York, N. Y.
Do.	Jan. 21	Butter, 3,500 pounds, patent packages . . . per lb	40	Norfolk, Va.
P. Lorillard & Co.	Jan. 25	Tobacco, 60,000 pounds . . do.	47½	New York, N. Y.
Armour, Plankinton & Co.	Feb. 12	Beef, 650 barrels . . . per bbl	18 25	Norfolk, Va.
Manhattan Oil Co.	Feb. 13	Candles, 5,000 pounds . . per lb	17 ½	New York, N. Y.
H. K. & F. B. Thurber & Co.	Feb. 14	Candles, 3,000 pounds . . do.	17½	Boston, Mass.
Do.	Feb. 14	Candles, 10,000 pounds . . do.	17½	Norfolk, Va.
John Harrison	Feb. 14	Pork, 500 barrels . . . per bbl	12 90	Boston, Mass.
Do.	Feb. 14	Pork, 300 barrels . . . do.	12 90	New York, N. Y.
Charles Rohe	Feb. 15	Pork, 850 barrels . . . do.	14 35	Norfolk, Va.
A. B. Raymond & Sons	Feb. 23	Beans, 5,000 gallons . . per gall	23½	Boston, Mass.
Do.	Feb. 23	Beans, 15,000 gallons . . do.	23½	New York, N. Y.
Do.	Feb. 23	Beans, 10,000 gallons . . do.	24½	Norfolk, Va.
Armour, Plankinton & Co.	Feb. 26	Beef, 600 barrels . . . per bbl	17 25	New York, N. Y.
Baldwin, Farnum & Shapleigh	Feb. 27	Beef, 300 barrels . . . do.	14 99	Boston, Mass.
L. J. Torrey	June 14	Fresh beef per lb	07	New York, N. Y.
Do.	June 14	Vegetables do.	01½	Do.
J. W. Hobbs	June 14	Fresh beef do.	11	Boston, Mass.
Do.	June 14	Vegetables do.	01½	Do.
C. F. Austin & Co.	June 14	Fresh bread do.	06	Do.
Do.	June 14	Baking bread, per bbl. of flour	1 75	Do.
J. E. Baum	June 14	Fresh beef per lb	06½	Norfolk, Va.
Do.	June 14	Vegetables do.	01½	Do.
James D. Mason	June 15	Baking bread, per bbl. of flour	1 00	Washington, D. C.
C. T. Goodwin & Sons	June 15	do. do.	1 00	New York, N. Y.
William Clark	June 15	Water per gall	00½	Norfolk, Va.
Do.	June 15	do. do.	00½	Hampton Roads.
C. T. Cahler	June 15	Fresh bread per lb	03½	Norfolk, Va.
Charles Tyler	June 17	Baking bread, per bbl. of flour	1 49	Do.
John McNamara	June 18	Fresh bread per lb	04	New York, N. Y.
L. S. Boreaf	June 18	Fresh beef do.	09½	League Island, Pa.
Do.	June 18	Vegetables do.	03½	Do.
Do.	June 18	Fresh bread do.	04½	Do.
I. S. Ivins & Son	June 18	Baking bread, per bbl. of flour	1 44	Do.
Cyrus L. Brown	June 18	Fresh bread per lb	06	Portsmouth, N. H.
James Odell	June 20	do. do.	06½	Port Royal, S. C.
J. T. Varnell	June 21	Fresh beef do.	05½	Washington, D. C.
Do.	June 21	Vegetables do.	01½	Do.
B. Charlton	June 21	Fresh bread do.	04	Do.
James E. Chase	June 26	Fresh beef do.	06½	Portsmouth, N. H.
Do.	June 26	Vegetables do.	01	Do.
George Dick	June 27	Water per gall	01½	Port Royal, S. C.
Moses White	June 29	Fresh bread per lb	07	Pensacola, Fla.
J. O'Neal	June 29	Navy bread do.	06½	Do.
Benjamin Burr	June 29	Fresh beef do.	14	Port Royal, S. C.
Do.	June 29	Vegetables do.	03	Do.

NOTE.—Fresh beef and vegetables, bread, and water, to be delivered during the fiscal year in quantities as required.

No. 9.—BUREAU OF STEAM-ENGINEERING.

NAVY DEPARTMENT,
BUREAU OF STEAM-ENGINEERING,
Washington, October 30, 1878.

SIR: I have the honor to submit to the department the annual report and exhibit of the operations of this bureau.

By act of Congress approved March 3, 1877, there was appropriated for this bureau for the fiscal year ending June 30, 1878, \$942,000, which amount has been expended as follows, viz:

Labor in navy-yards and stations, in constructing new engines, boilers, and their dependencies; repairing old boilers, machinery, &c., and fitting vessels for sea service; repair, purchase, and preservation of tools; handling and preservation of materials and stores.....	\$532,643 49
Purchase of materials, stores, &c.; freights, and incidental expenses....	159,368 46
Completion of new boilers, and completion of erection of the Quinnebaug's machinery, &c	200,602 00
Payments made on foreign stations, for repairs, materials, &c.....	51,789 08
Total	944,403 03
Less repayment by transfers in adjustment of appropriations.....	2,458 56
Total actual expenditures.....	941,944 47
Leaving an unexpended balance of.....	55 53
Total amount appropriated for 1877-'78.....	942,000 00

The following tables show the amounts appropriated under "An act making appropriations to supply deficiencies in the appropriations for the fiscal year ending June thirtieth, eighteen hundred and seventy-eight, and prior years, and for those heretofore treated as permanent, for reappropriations, and for other purposes," the amounts paid from said appropriation, with balances remaining, so far as pertains to the Bureau of Steam-Engineering:

	Appropriated.	Paid.
To American Steam-Gauge Company.....	\$20 50	\$20 50
To William H. Arthur & Company.....	192 30	192 30
To Atlantic Works.....	1,413 44	1,413 44
To Adams Express Company.....	2 35	2 35
To Stillman B. Allen.....	450 00	450 00
To Boston Lead Company.....	95 00	95 00
To George F. Blake Manufacturing Company.....	225 00	225 00
To Berner & Pinckney.....	26 50	26 05
To Cook, Rymes & Company.....	14 00	14 00
To Coast Wrecking Company.....	75 00	75 00
To M. A. Campbell.....	108 60	108 60
To C. H. De Lamater & Company.....	72,213 07	72,213 07
To Downie, Trainer & Company.....	69 88	69 88
To F. W. Devoe & Company.....	122 50	122 50
To Richard Dudgeon.....	693 86	693 86
To William P. Eddy.....	4 42	4 42
To Eastern Railroad Company.....	11 90	11 90
To George E. Hanson.....	83 00	83 00
To H. H. Ham.....	3 50	3 50
To Fabri, Chauncey & Company and others, for whom J. D. Hurlburt & Son were ship-brokers.....	4,031 19	980 60
To John Mullett.....	25 75	25 75
To A. A. McCullough.....	271 44	271 44
To Manhattan Packing Company.....	719 75	719 75
To Neale & Levy.....	45,218 64	45,218 64
To Old Dominion Steamship Company.....	29 92	27 00
To Philadelphia and New York Steam Navigation Company.....	2 12	.....
To Rider & Cotton.....	106 58	106 58
To Francis Raymond.....	4 70	4 70
To Sutton & Company.....	4,745 79	4,745 79
To Thomas M. Shepherd.....	130 00	130 00

	Appropriated.	Paid.
To Twitchell, Pike & Company	\$18 00	\$18 00
To E. V. White & Company	152 58	152 58
To E. M. Whittaker & Son	414 59	414 59
To C. C. Wallcott	876 71	.....
To George H. Creed	21 75	21 75
To Charles W. Cottle	54 87	54 87
To Mercer Goodrich	1 58	1 58
To Pacific Mail Steamship Company	733 95	733 95
To Pratt & Whitney Company	22,739 93	.....
To M. A. & C. A. Santos	29 75	29 75
To Vickery & Company	109 30	109 30
To Harlan & Hollingsworth Company	84,136 39	61,254 71
To T. F. Rowland	47,428 25	47,428 25
To Quintard Iron Works	116,384 20	116,082 54
To Quintard Iron Works (paid to Ashcroft)	5,000 00	5,000 00
To Quintard Iron Works (paid to Murphy & Co.)	301 66	301 66
To William Cramp & Sons	66,850 00	44,000 00
To C. F. Hatch	54 50	54 50
To American Tube Works	7,059 75	2,239 18
To E. H. Ashcroft	625 00	625 00
To A. P. Brown	51,846 38	51,846 38
To D. Babcock & Company	6,464 93	6,464 93
To Chalmers, Spence & Company	1,243 73	1,243 73
To G. P. Goff	8,265 40	8,265 40
To A. M. Ingersoll	13,156 50	13,156 50
To Manhattan Oil Company	16,883 56	16,883 56
To W. A. Torrey & Company	36,521 72	36,521 72
To Walton Brothers	8,694 63	8,694 63
To James M. Motley	4,320 00	4,320 00
To Providence Steam-Engine Company	288,187 22	267,861 87
To John Roach	323,139 50	236,073 37
To South Boston Iron Company	181,049 64	181,049 64
Total	1,423,876 67	1,238,959 16

There yet remain to be paid from the above appropriation, for work not yet completed, or accounts not yet settled, the following sums, viz :

To Fabri & Chauncey and others, for whom J. D. Hurlburt & Son were ship-brokers	\$3,050 59
To C. C. Walcott	876 71
To Pratt & Whitney Company	22,739 93
To Harlan & Hollingsworth Company	22,881 68
To W. Cramp & Sons	22,850 00
To John Roach	87,066 13

Total to be paid..... 159,465 04

The following amounts were appropriated in excess of what was found upon final settlement of accounts to be due the parties named :

Benner & Pinckney	\$0 45
Old Dominion Steamship Company	2 32
Philadelphia and New York Steam Navigation Company	2 12
Quintard Iron Works	301 66
American Tube Works	4,820 57
Providence Steam Engine Company	20,325 35

Total unexpended balance to be reappropriated or turned into the Treasury..... 25,452 47

The above exhibit shows the bureau entirely free of debt, with a small unexpended balance of appropriation 1877-78, and a surplus on account of appropriation for deficiency, of \$25,452.47.

NAVY-YARDS.

The departments under cognizance of this bureau at the several yards, under their present organization and equipment, are in excellent working condition.

Your attention is respectfully called to my reports of November and

December, 1877, in relation to certain additional buildings and equipments required at the navy-yards at Norfolk and Pensacola.

In view of the unsettled state of affairs on the Mexican border, it becomes a matter of the first importance to have the Pensacola navy-yard placed in the highest state of efficiency; the tools required to equip the proposed additions to the shop could be supplied to some extent from the other yards without affecting their present efficiency.

BOILER CONTRACTS.

With the exception of the contracts for boilers for the iron-clads *Puritan*, *Amphitrite*, and *Terror*, all contracts for boilers made under the last administration have been completed, the work inspected and received, and the boilers and appendages, except those which have been utilized in fitting vessels for sea-service, have been carefully stored in our navy-yards for future use.

The following will exhibit the extent and character of the work done, under the cognizance of this bureau, since my last report, upon the boilers and machinery of naval steamers, together with their present condition, and the time required to fully complete and fit for sea:

Alaska (2d rate).—New boilers have been erected on board, a new composition four-bladed propeller of bureau design fitted in place of the former two-bladed one, engines and dependencies put in thorough repair. Ship in commission. When ready for sea in all respects, a maximum speed trial under steam alone was made, with a restricted steam pressure, the results of which were most satisfactory as compared with previous performances of the ship, a speed of over eleven knots having been maintained without difficulty.

Pouchatan (2d rate).—New boilers have been placed on board and the machinery put in thorough condition for protracted service. The four new boilers used on this ship were removed from the iron-clad *Colossus*, the hull of which ship has been condemned. The two boilers remaining have been stored with a view to future use.

Pensacola (2d rate).—This vessel has been supplied with new boilers, machinery, and dependencies placed in complete repair. A new four-bladed propeller, of bureau design, has been cast and will be fitted at the first favorable opportunity.

Ticonderoga (2d rate).—Engines, boilers, and dependencies thoroughly repaired and fitted for sea. The two-bladed propeller removed, and the original four-bladed one restored.

Richmond (2d rate).—Fitted with new boilers and a new four-bladed propeller. Engines and dependencies put in thorough repair. In commission.

Quinnebaug (3d rate).—Engines, boilers, and dependencies completed for sea. Now in commission.

Tuscarora (3d rate).—Engines, boilers, and attachments thoroughly overhauled and repaired. Ship in commission.

Lackawana (2d rate).—Extensive repairs, including new boilers. In commission.

Kearsage (3d rate).—New boilers and extensive repairs to machinery. Can be prepared for sea in forty days.

Shenandoah (2d rate).—New boilers. Machinery extensively repaired and put in good condition. New four-bladed propeller. Can be prepared for sea in seventy days.

Wachusett (3d rate).—Extensive overhauling and repairs to engines, &c. New boilers. Ready for sea in twenty days.

Wyoming (3d rate).—Slight repairs to machinery and boilers. In commission.

Brooklyn (2d rate).—Extensive repairs, including new boilers and a new four-bladed propeller. Can be prepared for sea in ninety days with full force.

Canandaigua (2d rate).—Extensive repairs to engines and boilers. Fitted with a new four-bladed propeller.

Monongahela (2d rate).—Extensive repairs to engines and boilers. Vessel in commission.

Enterprise (3d rate).—Outfit completed and vessel in commission.

Tallapoosa (4th rate).—Repairs to machinery and boilers. New paddle-wheels.

Gettysburg (4th rate).—Repairs made abroad.

Nipsic (3d rate).—Erecting engines. A new four-bladed propeller of bureau design has been cast and fitted, and is stored ready for use.

Catalpa (tug).—General overhauling and repairs.

Leyden (tug).—Thorough repairs to machinery. New boilers.

Mayflower (tug).—Extensive repairs to engines and boilers.

Speedwell (tug).—General repairs.

Rose (tug).—Thorough overhauling of engines, boilers, and dependencies.

Standish (tug).—New boilers. Machinery repaired.

Triana (tug).—General repairs.

SPECIAL WORK.

At the various navy-yards the following work has been done during the past year, in addition to the routine labor of fitting and repairing machinery, boilers, &c., on board naval vessels.

New engines of the compound type, from bureau designs, are in a forward state of readiness for the *Mohican* and *Galena*, and will be ready for service by the time these vessels are prepared to receive them.

Boilers, designed by the bureau, of the description required for use in connection with the compound type of engines, are in process of construction for the *Nipsic* and *Galena*.

Steam-launch engines and boilers to the number of 37 boilers and 23 engines have also been built and erected during the past year, and a large proportion of them are now in service with the various naval vessels in commission, the remainder being stored at the several navy-yards for expenditure as they may be required.

Ten large screw propellers (composition), aggregating a finished weight of 62 tons, of bureau design, have been cast at the Washington yard, mostly from old and condemned propellers and scrap collected from the various yards.

There is in course of gradual construction at the same yard a rolling-mill of medium size, and its motive engines, for the Mare Island navy-yard. The very satisfactory results obtained from the use of the one recently built, and now in operation at the Washington navy-yard, leaves no doubt as to the great saving in annual outlay for bar-iron for naval purposes.

WORK REQUIRED.

The following will show the character and extent of the work necessary to be carried out on the vessels enumerated during the fiscal year 1879-'80, under the cognizance of this bureau.

Ashuelot.—General overhauling and repairs.

- Brooklyn*.—Under repair at New York.
Canandaigua.—Under repair at Norfolk, Va.
Colorado.—Small repairs, &c.
Hartford.—Needs thorough repair and new boilers.
Galena.—Completion of new engines and boilers.
Iroquois.—Extensive repairs and new boilers.
Juniata.—Completion of the repairs in progress; new boilers already completed to be placed in ship.
Lancaster.—Complete overhauling, if rebuilt for flagship.
Michigan.—General repairs and new boilers.
Mohican.—Continue work already in progress.
Monocacy.—General overhauling and repair.
Nonongahela.—Sundry repairs, to maintain present condition.
Narragansett.—Thorough repair and new boilers.
New York.—Adapt engines and new boilers (non-compound), now on hand.
Omaha.—Extensive repairs, and new boilers already completed, to be placed in ship.
Ossipee.—Extensive repairs and new boilers.
Sucatarra.—General repairs.
Standish.—New boilers, already completed, to be placed in the ship.
Tuscarora.—Extensive repairs and new boilers.
Yantic.—New boilers, already completed, to be placed in the ship.

EXPERIMENTAL INVESTIGATIONS.

The board of experienced engineer officers convened at the navy-yard, New York, of which Chief-Engineer B. F. Isherwood, U. S. N., is president, is busily engaged in examining and reporting upon subjects submitted to them by the department.

The board is performing noteworthy service, and its researches and reports are alike valuable to the naval service and to the general public. The work now being done consists of experiments with coal of different varieties, furnished without expense to the government from various mines; the determination of the value of various liquid fuels and subjects connected therewith.

In addition to this experimental duty, the board is required to conduct the dock and speed trials of naval vessels fitting for sea.

BOILER PLATE.

By a joint resolution, approved June 14, 1878, the department is authorized to purchase at the lowest market price such plate-iron, &c., as may enter into the construction of steam-boilers for the Navy without advertising for bids to furnish the same. This plate-iron, by the terms of the law, must be tested publicly, and inspected by competent authority, before being purchased.

To comply with the law, and to insure the procurement of the best material in the market, it is respectfully recommended that a special appropriation be asked for of \$3,500, to enable this bureau to purchase a testing machine for plate-iron, having a capacity of not less than 150,000 pounds. Such a machine, erected at the navy-yard here, will be of great value, not only for the purposes contemplated by the above-mentioned law, but for current use in the several departments of the yard.

SALE OF OLD MATERIAL.

It is respectfully recommended that existing laws in relation to the sale of old and condemned material be so far amended that the proceeds of such sales, under the cognizance of this bureau, may be directly applied to the purchase of new material, tools, stores, &c., instead of, as at present, turning these proceeds into the Treasury, where they cease to be available for bureau use. In this connection, I respectfully renew my request in last year's report, that the law in relation to the proceeds of public sales be so amended as to allow the expenses of such sales, advertising, auction fees, &c., to be deducted from the proceeds of the sale.

Under existing law, section 3618 of the Revised Statutes, these expenses are a charge upon the regular appropriation, and so become a source of loss to the bureau to that extent.

NAVAL ARCHITECTURE.

In the annual report of this bureau of November 9, 1877, I submitted for your consideration the recommendation that the periods devoted to the subject of naval architecture at the Naval Academy (as applicable exclusively to the theory and practice of iron ship building) might be extended; *i. e.*, that more time be devoted to this particular branch of marine engineering. I learn that this recommendation has been carried out.

I now very respectfully call your attention to the law providing for the appointment of engineer graduates from the Naval Academy as assistant naval constructors (section 1403 of the Revised Statutes), and to state that the academic board have recommended two or three of the engineer graduates for the appointment of assistant naval constructors, and their applications are now on file. The high order of merit attained in all of their studies at the Academy, and especially their distinguished mathematical acquirements, fit them in an especial manner for the discharge of the duties of naval constructors as they should be, and probably will be, conducted in the future.

As a measure of economy for the government, I wish to point to the fact that these officers, while under instruction in practical steam-engineering and naval architecture at the Academy, and during their annual visits to the various iron ship-building establishments for practical information during the summer cruising, and by the experience gained on foreign stations, become better fitted in all that relates to the requirements of an iron ship—her strength, adaptability to the end proposed, &c.—than any appointee from civil life can be. In addition to which, they become more thoroughly imbued with that *esprit de corps* so essential to harmony and success in a military organization.

PERSONNEL OF THE ENGINEER CORPS.

The number of vacancies is still quite large, causing frequent embarrassment to the bureau in the assignment to duty of engineer officers in the lower grade; but under the operation of existing law, and by reason of the high standard of qualification for entry at the Naval Academy, insuring a large percentage of graduates annually, these vacancies will be gradually filled from this source alone.

PENSIONS FOR DISABLED MECHANICS.

Government, very properly and most justly, pensions its sailors and soldiers, provides the comforts of homes and asylums for them in their

declining years, and in case of death in the line of duty cares for the widow and the orphan. There is yet another class of public servants in whose behalf I would make an earnest appeal, the mechanics employed in our navy-yards and stations. For them there is no provision in case of death or disability in the discharge of their duties. It matters not how long or how faithfully they may have served the government, nor how hazardous their duty or calling; an arm or a leg is broken, an eye is lost, a hand is crushed, or, perhaps, instant death overtakes the laborer, and he is borne to his home by his fellow-workmen; he fails to answer at the next roll-call, his name is first checked, then stricken from it altogether; a few dollars is, perhaps, collected by subscription among his fellow-laborers, and that is the last of him and his family, so far as the government is concerned.

Another class there is who, after long and faithful service in government employ, become enfeebled by age or the infirmities incident to their calling, find themselves no longer able to fill the inexorable demand for a full day's work, and so must be discharged altogether or reduced to a lower grade of pay, perhaps scarcely sufficient to supply the commonest necessities of life. Upon this subject I am able to speak advisedly, as accidents and disabilities such as I have above referred to come under my personal observation in the departments under cognizance of this bureau.

I therefore respectfully recommend that such provision be made as in the wisdom of Congress may seem to be advisable to meet the necessities of the class of public servants whose perils and wants I have thus briefly summarized; and as our navy-yards and stations are open to the workmen from all parts of the United States alike, no distinction or preference being shown save as to merit, so the benefits of any action by Congress, as recommended, will not be confined to citizens from any particular section.

ESTIMATES.

I have the honor to submit herewith the annual estimates of this bureau for the fiscal year ending June 30, 1880.

It is proper to state that these estimates have been carefully examined and revised, and I am of the opinion that the amounts are the lowest practicable for carrying on the operations of this bureau for the said fiscal year.

I have the honor to be, very respectfully, your obedient servant,

W. H. SHOCK,
Chief of Bureau.

Hon. R. W. THOMPSON,
Secretary of the Navy, Washington, D. C.

*Estimates of appropriations required for the service of the fiscal year ending June 30, 1880,
by the Bureau of Steam Engineering, Navy Department.*

Detailed objects of expenditure, and explanations.	Estimated amount which will be re- quired for each detailed object of expenditure.	Amount appropri- ated for the cur- rent fiscal year ending June 30, 1879.
SALARIES.		
Chief clerk, per act June 19, 1878 (Stat. at L., p. 198, ch. 329)	\$1,800 00	
Draughtsman, per act June 19, 1878 (Stat. at L., p. 198, ch. 329)	1,800 00	
Assistant draughtsman, per act June 19, 1878 (Stat. at L., p. 198, ch. 329)	1,600 00	
One clerk of class two, per act June 19, 1878 (Stat. at L., p. 198, ch. 329)	1,400 00	
One clerk of class one, per act June 19, 1878 (Stat. at L., p. 198, ch. 329)	1,200 00	
One clerk, per act June 19, 1878 (Stat. at L., p. 198, ch. 329)	1,000 00	
One assistant messenger, per act June 19, 1878 (Stat. at L., p. 198, ch. 329)	720 00	
One laborer, per act June 19, 1878 (Stat. at L., p. 198, ch. 329)	660 00	
	10,180 00	\$10,180 00
CONTINGENT.		
For stationery and miscellaneous items, per act June 19, 1878 (Stat. at L., p. 198, ch. 329)	700 00	700 00
STEAM MACHINERY.		
For preservation of machinery, boilers, &c., in vessels on the stocks and in ordinary; purchase and preservation of all materials and stores; pur- chase, fitting, and repair of machinery and tools in the navy-yards and stations; wear, tear, and repair of machinery, boilers, &c., of naval ves- sels; incidental expenses, such as foreign postages, telegrams, advertis- ing, freight, &c., appropriated per act May 4, 1878 (Stat. at L., p. 54, sec. 91)	1,497,000 00	800,000 00
CIVIL ESTABLISHMENT.		
Portsmouth, N. H., navy-yard:		
One clerk	\$1,300 00	
One writer (store)	1,017 25	2,317 25
Boston, Mass., navy-yard:		
One clerk	1,300 00	
One writer (store)	1,017 25	2,317 25
Brooklyn, N. Y., navy-yard:		
One clerk	1,400 00	
One clerk	1,300 00	
One writer (store)	1,017 25	3,717 25
League Island, Pa., navy-yard:		
One clerk	1,300 00	
One writer (store)	1,017 25	2,317 25
Washington, D. C., navy-yard:		
One clerk	1,300 00	
One writer (store)	1,017 25	
One writer	1,017 25	3,334 50
Norfolk, Va., navy-yard:		
One clerk	1,300 00	
One writer (store)	1,017 25	2,317 25
Pensacola, Fla., navy-yard:		
One writer		1,017 25
Mare Island, Cal., navy-yard:		
One clerk	\$1,400 00	
One clerk	1,300 00	2,700 00
	20,038 00	

No. 10.—BUREAU OF CONSTRUCTION AND REPAIR.

NAVY DEPARTMENT,
BUREAU OF CONSTRUCTION AND REPAIR,
October 30, 1878.

SIR: I have the honor to submit, in conformity with your instructions of the 22d instant, statements of the work of this bureau for the past year, and estimates covering expenditures required for the fiscal year ending June 30, 1880.

1877.			
July 1.	Amount appropriated by Congress for the fiscal year 1877-78.	\$1,750,000 00	
	Expended from July 1, 1877, to June 30, 1878, for materials, &c	\$328,528 27	
	Expended from July 1, 1877, to June 30, 1878, for labor at navy-yards	1,383,608 00	
			1,712,136 27
	Balance on hand July 1, 1878.....		37,863 73
1878.			
April 30.	Amount appropriated by Congress to pay mechanics for labor performed during the fiscal year 1876-77	25,993 41	
	Expended during May, 1878.....	25,993 41	
		For timber.	For sundries.
June 14.	Amount appropriated by Congress to meet a deficiency on account of fiscal year 1876-77 ...	\$416,319 32	\$931,134 55
	Expended from June 15 to June 30, 1878.....	261,801 09	673,885 86
	Balance on hand July 1, 1878.....	154,518 23	257,248 69

Vessels on which work in repairing or completion was done during the fiscal year 1877-78.

Antietam.	Iroquois.	Pinta.
Alaska.	Jason.	Portsmouth.
Ajax.	Jean Sands.	Powhatan.
Camanche.	Juniata.	Plymouth.
Canandaigua.	Kearsarge.	Quinnebaug.
Canonicus.	Lackawanna.	Rescue.
Catskill.	Lancaster.	Richmond.
Cohasset.	Lehigh.	Saratoga.
Colorado.	Leyden.	Saugus.
Constellation.	Mahopac.	Shenandoah.
Constitution.	Manhattan.	Snowdrop.
Despatch.	Mayflower.	Sorrell.
Emerald.	Miantonomoh.	Speedwell.
Enterprise.	Minnesota.	St. Louis.
Essex.	Monadnock.	Supply.
Fortune.	Monongahela.	Swatara.
Franklin.	Montauk.	Tallapoosa.
Frolic.	Monterey.	Ticonderoga.
Galena.	Nahant.	Trenton.
Glance.	New Hampshire.	Triana.
Guard.	Nipsic.	Tuscarora.
Hartford.	Ossipee.	Wabash.
Huron.	Passaic.	Wachusett.
Independence.	Peisacola.	Wyandotte.
Intrepid.	Pilgrim.	Wyoming.

The labor of the bureau for the past year, and in the absence of an appropriation to build new ships, has been chiefly in the direction of keeping in good repair those which we now have, and the money appropriated has been expended accordingly. As it has been desirable to reduce rather than increase our stock of material, the expenditures have been chiefly for labor.

While many of the vessels mentioned in the foregoing statement have required and received only such repairs as were necessary to keep them

in good condition, others have been very thoroughly overhauled, and are now in condition for good service for years to come; these are the *Alaska*, *Ticonderoga*, *Kearsarge*, *Richmond*, *Shenandoah*, *Lackawanna*, *Pensacola*, *Powhatan*, and *Saratoga*. The *Quinnebaug* has been completed and is now in commission. The *Nipsic* has been launched and is now being fitted for sea; and the *Galena* will be ready for launching early in December next.

In repairing the *Richmond*, the system of ventilation recommended by a board of officers consisting of Medical Inspector T. J. Turner, Commander J. R. Bartlett, Chief Engineer David Smith, and Naval Constructor F. L. Fernald has been adopted. Good results are anticipated, but experience alone can determine whether the system is a good one.

Fourteen monitors and two large torpedo-boats are in good condition and ready for service. One of the large monitors now building (the *Miantonomoh*) can be completed with the funds already in hand; the others, viz, *Monadnock*, *Terror*, *Amphitrite*, and *Puritan*, cannot be finished without an additional appropriation in this bureau of \$1,895,614.

We are prepared to build and fit out ships in all of our yards except *Pensacola* and *League Island*. In the former yard we await only the completion of the floating-dock to enable us to repair all naval vessels cruising in or near the Gulf of Mexico. In the latter yard the necessity of a dry-dock becomes more and more apparent. For want of such a dock we cannot complete vessels in all respects ready for sea, and we are therefore subjected to the expense of doing the work at two places.

Besides the usual work required on vessels to keep them in good order, we are now thoroughly repairing the *Lancaster*, *Wachusett*, *Tennessee*, *Juniata*, *Yantic*, and *Iroquois*. The repairs on these ships will be completed as rapidly as the funds of the bureau will allow.

The service requires fast, unarmored cruising ships, and also one or more powerful rams. The cruising ships are not only wanted to replace some of those now in commission, and which, for lack of speed, are not suited to the wants of the service, but would be absolutely necessary for us in case of war with any maritime power.

With very fast ships we can destroy the commerce of an enemy, and be on equal terms with his ships of like character; while in the event of meeting with powerful but comparatively slow armored ships, we could leave them at pleasure. Believing that Congress would not long delay the appropriations needed for vessels of this character, directions have been given to have plans prepared, by naval constructors having work in charge, for iron unarmored cruising vessels of 3,500 tons displacement, and iron rams of 2,000 tons displacement. These plans will, it is thought, combine all the improvements in ship-building for the last few years.

The estimate of \$1,500,000 for the fiscal year ending June 30, 1880, will be required in keeping in good order ships needing but slight repairs, and in completing or extensively repairing the following-named vessels, viz, *Mohican*, *Brooklyn*, *Ossipee*, *Hartford*, *Canandaigua*, *Monocacy*, *Lancaster*, and *Ashuelot*.

I would again suggest the propriety of ridding our yards of ships not worth repairing or completing, but which are a constant source of expense, either by selling them at auction or breaking them up; in either case, the proceeds to be turned over to the department for use in repairing or building other vessels.

All of which is respectfully submitted.

J. W. EASBY,
Chief of Bureau.

Hon. R. W. THOMPSON,
Secretary of the Navy.

*Estimates of appropriations required for the service of the fiscal year ending June 30, 1880,
by the Bureau of Construction and Repair.*

Detailed objects of expenditure, and explanations.	Estimated amount which will be re- quired for each detailed object of expenditure.	Amount appropri- ated for the cur- rent fiscal year ending June 30, 1879.
SALARIES.		
Chief clerk, per act of June 19, 1878 (pamph. ed., p. 197)	\$1,800 00	
Draughtsman, per act of June 19, 1878 (pamph. ed., p. 197)	1,800 00	
One clerk of class four, per act of June 19, 1878 (pamph. ed., p. 197)	1,800 00	
One clerk of class three, per act of June 19, 1878 (pamph. ed., p. 197)	1,800 00	
One clerk of class two, per act of June 19, 1878 (pamph. ed., p. 197)	1,400 00	
One clerk of class one, per act of June 19, 1878 (pamph. ed., p. 197)	1,200 00	
One assistant messenger, per act of June 19, 1878 (pamph. ed., p. 197)	720 00	
One laborer, per act of June 19, 1878 (pamph. ed., p. 197)	680 00	
	10,980 00	10,980 00
CONTINGENT.		
Stationery and miscellaneous items; appropriated (pamph. ed. p. 197)	400 00	400 00
CONSTRUCTION AND REPAIR OF VESSELS.		
Preservation of vessels on the stocks and in ordinary; purchase of materials and stores of all kinds; labor in navy-yards and on foreign stations; pre- servation of materials; purchase of tools; wear, tear, and repair of ves- sels afloat, and for general care and protection of the Navy in the line of construction and repair; incidental expenses, namely, advertising and for- eign postage; appropriated (pamph. ed., p. 53)	1,500,000 00	1,500,000 00
CIVIL ESTABLISHMENT.		
At the navy-yard, Kittery, Me.:		
One clerk to naval constructor	1,400 00	
One clerk of store-houses	1,300 00	
One writer	1,017 25	
Two writers	1,878 00	
	5,595 25	
At the navy-yard, Boston, Mass.:		
One clerk to naval constructor	1,400 00	
One clerk of store-houses	1,300 00	
One writer	1,017 25	
Two writers	1,878 00	
	5,595 25	
At the navy-yard, Brooklyn, N. Y.:		
One clerk to naval constructor	1,400 00	
One clerk of store-houses	1,300 00	
One writer	1,017 25	
Two writers	1,878 00	
	5,595 25	
At the navy-yard, League Island, Pa.:		
One clerk to naval constructor	1,400 00	
One clerk of store-houses	1,300 00	
One writer	1,017 25	
Two writers	1,878 00	
	5,595 25	
At the navy-yard, Washington, D. C.:		
One clerk to naval constructor	1,400 00	
One clerk of store-houses	1,300 00	
One writer	1,017 25	
Two writers	1,878 00	
	5,595 25	
At the navy-yard, Norfolk, Va.:		
One clerk to naval constructor	1,400 00	
One clerk of store-houses	1,300 00	
One writer	1,017 25	
Two writers	1,878 00	
	5,595 25	

Estimates of appropriations required for the service of the fiscal year ending June 30, 1880, &c.—Continued.

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Amount appropriated for the current fiscal year ending June 30, 1879.
CIVIL ESTABLISHMENT—Continued.		
At the navy-yard, Pensacola, Fla. :		
One writer	\$939 00	
At the navy-yard, Mare Island, Cal. :		
One clerk to naval constructor	1,400 00	
One clerk of store-houses	1,300 00	
One writer	1,017 25	
Two writers	1,878 00	
	5,565 25	

No. 11.—MARINE CORPS.

HEADQUARTERS MARINE CORPS,
COMMANDANT'S OFFICE,
Washington, D. C., October 1, 1878.

SIR: I have the honor to submit my annual report for the past year.

At the present time there are 1,942 enlisted men in the Marine Corps, of whom 1,053 are on board ships in commission, and 889 at the several shore stations.

INCREASE OF ENLISTED MEN.

I renew my recommendation of last year that the Navy Department should favorably consider the additional estimates submitted for 300 more privates. The number allowed (1,500) is so small that it is impossible to supply the demands of the Navy and properly perform the duty required. This leaves the Naval stations without adequate protection, and the vessels of the Navy without proper guards.

BARRACKS AND QUARTERS.

The subject of barracks for enlisted men and quarters for officers is one which urgently calls for immediate attention.

At League Island the men are quartered on board an iron-clad (the Dictator), living below water, in dampness, with insufficient light, and during the heat of the past summer under an iron deck. These are the best barracks that I have been able to procure for them. The officers, having no quarters, are forced to live five miles away in Philadelphia.

At Annapolis the men are quartered in a shed built on a wharf, and mess on board an old ferry-boat, past repair, which it is impossible to keep dry. Here, also, are quartered the officer of the day and guard for the day. There are no quarters for officers, who have to live away from the men in Annapolis.

At Norfolk the barracks are only a small frame building of one story, built in the most unhealthy and unsuitable place in the navy-yard, with a swamp a few feet in front of it, and a high brick wall immediately in the rear, cutting off all supply of air.

There are no quarters for officers, who live in Norfolk.

At the navy-yard at Washington, D. C., the barracks are much too small for the command, and should be enlarged. There are no quarters for officers, who live in the city at long distances from the men.

It is respectfully submitted that such a state of things is not calculated to promote content or discipline.

As the government has paid annually a large sum as "commutation of quarters" for officers for many years, it would have been economy to have built quarters long since, which could have been done at a reasonable expense. The barracks at Brooklyn, N. Y., and Mare Island, Cal., which are the largest we have, are much out of repair, and a special appropriation for them and for alterations at the navy-yard, Washington, D. C., is greatly needed. Estimates are submitted amounting to \$21,955.85 for this purpose. Those of last year for the building of barracks at League Island and Annapolis, and for officers' quarters at these posts and Norfolk, are again submitted, and it is urgently requested that the department will favorably recommend that these estimates be inserted in the naval appropriation bill for 1880-'81.

COMMISSIONED OFFICERS.

The number of second lieutenants is now reduced to 20, leaving 9 more vacancies to occur before any appointments can be made, in compliance with the naval appropriation bill of 1876-'77.

I respectfully recommend the passage of an act requiring the examination of officers before promotion, in the same manner as in the Navy, and that when appointments are again made in the grade of second lieutenant they be graduates of the Military Academy, with a due proportion of worthy non-commissioned officers to be examined and promoted in the same manner as is provided by a recent act for the Army.

I also recommend that the "fleet officer" of marines shall have the rank and pay of the next higher grade while so serving.

BAND.

I renew my recommendation of last year that the band of the Marine Corps, being properly a national band (as it is used for all official purposes in Washington, and sometimes elsewhere), should in justice to the worthy men who have, many of them, served faithfully for long periods, be put upon a proper footing by Congress as regards classes and pay.

I have already submitted to the department the draught of a bill for this purpose.

GUARD AT THE PARIS EXPOSITION.

A detachment of the corps, consisting of 2 officers and 29 enlisted men, has been serving at the Paris Exposition since its opening, as a protection for the American goods exhibited there. Their appearance, discipline, and efficiency have elicited much praise from both Europeans and Americans, and they have been compared favorably with troops of other nations so employed.

DISCIPLINE AND EFFICIENCY.

Every effort has been made on my part, during the past year, to bring the corps up to the highest state of discipline and efficiency, and in proficiency in all military exercises. The inspections show that a marked

improvement is visible in this respect. The instruction of officers and men is more careful than it has ever been before, and with excellent results.

I have the honor to be, very respectfully, your obedient servant,
C. G. McCawley,
Colonel Commandant.

Hon. R. W. THOMPSON,
Secretary of the Navy, Washington, D. C.

HEADQUARTERS MARINE CORPS,
COMMANDANT'S OFFICE,
Washington, D. C., October 30, 1878.

SIR: The inclosed copies of reports upon the condition of the marine barracks at Norfolk, Va., I beg may be placed, in connection with my annual report, before the Committee on Appropriations of the House of Representatives, should the department think proper.

Very respectfully, your obedient servant,
C. G. McCawley,
Colonel Commandant.

Hon. R. W. THOMPSON,
Secretary of the Navy, Washington, D. C.

MEDICAL OFFICE, NAVY-YARD,
Norfolk, Va., October 9, 1878.

SIR: In submitting the following paper, relating to the marine command and marine barrack of this station, I would respectfully state that it would have been forwarded to your office at an earlier date had not yellow fever been prevailing to an alarming extent in the Southern States, on which account it was purposely delayed to prevent any unnecessary alarm on the part of those connected with the navy-yard, of whom many were fully impressed with the belief that the scourge had already reached Norfolk.

The complement of the marine command, non-commissioned officers and privates, is about 100; of this number I find that fully one-fifth, a daily average and a very large percentage, is incapable of performing duty by reason, in the majority of instances, of malarial fever contracted while on post, but more particularly during sleeping hours in the barrack.

The cases readily yield to treatment, but frequent attacks soon enervate and dishearten the most robust and best disposed patient, who is then hurried off to the hospital, to remain for weeks or months; when restored to proper condition he is returned to the navy-yard, where, if in summer or autumn, he is again exposed to, accepts, and manifests the effects of a fresh dose of malarial poison; in the mean time the inefficiency of the marine guard is shown daily by diminishing numbers.

The marine barrack is at the farther end of the navy-yard, in an unhealthy and undesirable location. The ground is made and being made: the river frequently overflows its spongy bank; the porous earth rapidly absorbs the rain only to give it back heavily charged with miasm. Near here the main sewer empties into the river; decaying timber and water-soaked piling assist in contaminating the atmosphere, while the

western wall of the yard materially interferes with the proper ventilation of the barrack.

The barrack is a one-story wooden structure, resting on brick piers two feet above the ground, is 131 feet long by 35 feet wide, divided longitudinally by a partition, on one side of which are the dining-room, kitchen, two store-rooms, and three offices; on the other is the sleeping apartment running the whole length of the building, and of which the dimensions are 130 by 20 feet; height, 16 feet.

As the accommodations are for 100 men, it will be seen by the measurements of the sleeping apartment that to each man is allotted only 416 cubic feet of air-space, when he should have, as found by experience, at least 500, with frequent renewals of wholesome air; this difference, however, would not materially affect the health of the sleepers in summer and autumn in a healthy location; but here, with all the windows and doors open, the exhaled poisonous carbonic-acid gas is not replaced or adulterated by healthy and vitalizing atmospheric air, but simply substituted for miasmatic effluvia, and the consequences are a large sick-list and an inefficient guard.

In concluding this paper, which partakes more of a simple statement of existing facts than of a report, you will please observe I have made no comments or suggestions, preferring to wait until the commanding officer of the Marines addresses you officially on the state of his command and the condition of the barrack.

Very respectfully, &c.,

M. BRADLEY,
Surgeon, U. S. N.

Commodore J. BLAKELEY CREIGHTON, U. S. N.,
Commandant Navy-Yard, Norfolk, Va.

MARINE BARRACKS,
Norfolk, Va., October 12, 1878.

SIR: I have the honor to make the following report regarding the building now in use as a barracks for the Marines of this station. The building is a frame one, and when built was considered merely as a temporary affair; it is a single story, raised on brick pillars about three feet from the ground, and is open to the easterly winds only, as it stands close to the navy-yard wall, which completely cuts off any breeze or ventilation from any point from north to south by the west. The ground is "made land," and the "rotting timber," "marsh mud," exposed to tidal influences have caused a diminution in the strength of this command to such an extent as to render it almost impossible to keep up the regular guard routine. I have found that the sick report of this command will average about 25 per cent. of its strength, caused almost entirely by miasmatic influences and bad ventilation. The building is not large enough for the command, and I would strongly urge that such steps be taken as will assure the erection of a suitable building in a more healthy part of the yard. During the recent visit of the honorable Secretary of the Navy, he inspected these barracks and seemed fully impressed as to their unsuitability, they at that time being so crowded as to hardly allow a narrow passageway between the bunks. The sick have to be sent to the general hospital; whereas, was there a building properly erected in a more healthy section of the yard, I am confident that the health of the command would be materially improved, and the command rendered efficient and available for any and all duty.

I sincerely trust that you may feel assured of the great importance

of an immediate change in the location of, and building of, a proper barracks.

I have the honor to be, very respectfully, your obedient servant,

F. H. HARRINGTON,

First Lieutenant, United States Marine Corps, Commanding Post.

Commodore J. BLAKELEY CREIGHTON, U. S. N.,

Commandant Norfolk Navy-Yard, Norfolk, Va.

HEADQUARTERS MARINE CORPS,

COMMANDANT'S OFFICE,

Washington, D. C., September 25, 1878.

SIR: I respectfully forward to the department, in duplicate, "Estimates of appropriations for the Paymaster's and Quartermaster's Departments, United States Marine Corps," for the fiscal year ending 30th June, 1881.

I also inclose letters from the paymaster and quartermaster in relation to the estimates.

I have the honor to be, your obedient servant,

C. G. McCAWLEY,

Colonel Commandant.

Hon. R. W. THOMPSON,

Secretary of the Navy, Washington, D. C.

UNITED STATES MARINE CORPS,

QUARTERMASTER'S OFFICE,

Washington, D. C., September 25, 1878.

SIR: I respectfully transmit herewith the annual estimates of appropriations required for the service of the fiscal year ending June 30, 1880, by the Quartermaster's Department of the Marine Corps.

These estimates vary from those of fiscal year ending June 30, 1879, as follows:

Provisions, decreased	\$7,227 00
Clothing, decreased	1,866 00
Fuel, decreased	4,867 50
Transportation, &c	400 00
Military stores, decreased	313 50
Repair of barracks, increased	2,000 00
Forage, decreased	4,500 00
Contingencies, decreased	5,000 00

The aggregate amount of these estimates is \$38,174 less than that asked in estimates of last year.

Under military stores, the amount required to pay mechanics is estimated for separately, and by direction of the honorable Secretary of the Navy the purchase of arms and ordnance stores heretofore obtained from the Army is also estimated for.

New instruments being required for the band, the sum of \$1,400 is estimated as their cost.

The aggregate amount appropriated for the Quartermaster's Department for fiscal year ending June 30, 1879, was \$214,000. The aggregate amount asked for fiscal year ending June 30, 1880, is \$213,981.50, being \$18.50 less than the amount appropriated for current fiscal year.

I am, very respectfully, your obedient servant,

W. B. SLACK,

Quartermaster, Marine Corps.

Col. CHAS. G. McCAWLEY,

Commandant United States Marine Corps, Headquarters.

*Estimates of appropriations required for the service of the fiscal year ending June 30, 1880,
by the Quartermaster's Department United States Marine Corps.*

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of ex- penditure.	Total amount to be appro- priated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1879.
PROVISIONS.			
1,000 non-commissioned officers, musicians, privates, and washer- women, 365 days, at one ration per day, is 365,000 rations, at 20 cents per ration	\$73,000 00		
Difference between the cost of rations at 20 cents and commuta- tion at 75 cents, for ten enlisted men, employed as clerks, mes- sengers, laborers, and orderly in commandant's, adjutant's, and inspector's, quartermaster's and assistant quartermaster's offi- ces, for 365 days, being 3,650 rations, at 55 cents per ration, is	2,007 50	\$75,007 50	\$78,000 00
CLOTHING.			
2,000 non-commissioned officers, musicians, and privates, at \$32.25 per annum, actual cost per contracts 1878-79	64,500 00		
400 overcoats, at \$8.11 each	3,244 00	67,744 00	60,000 00
FUEL.			
3,894 cords of wood, as follows: one colonel commandant, one colonel, two lieutenant colonels, four majors, three staff-majors, two staff-captains, twelve captains, fifteen first lieutenants, fifteen second lieutenants, one thousand non-commissioned officers, musicians, privates, and washerwomen; six hospitals, one armory, five mess-rooms for officers, sixteen offices for com- mandant and staff and commanding officers of posts, nine rooms for officers of the day, nine guard-rooms at barracks and navy-yards, three stores for clothing and other supplies; one- fourth additional on 2,400 cords, quantity supposed to be re- quired in latitude north 36 degrees, from September 1 to April 30, 600 cords, amounting in all to 3,894 cords, at \$5.25 per cord		20,443 50	20,000 00
MILITARY STORES.			
Pay of one chief armorer, at \$3 per day, \$939; three mechanics, at \$2.50 per day each, \$2,347.50; in all	3,286 50		
Purchase of military equipments, such as cartridge-boxes, bayo- net-scarbards, haversacks, canteens, musket-slings, swords, arms and ordnance stores, drums, fifes, bugles, flags, &c.	5,000 00		5,000 00
Purchase of new instruments for the band	1,400 00	9,686 50	
TRANSPORTATION AND RECRUITING.			
Transportation of troops and expenses of recruiting		7,600 00	5,000 00
REPAIR OF BARRACKS.			
At Portsmouth, N. H., Boston, Mass., Brooklyn, N. Y., League Island, Pa., Annapolis, Md., Headquarters, Washington, D. C., navy-yard, Washington, D. C., Gosport, Va., Mare Island, Cal., and for rent of offices where there are no public buildings		13,000 00	8,000 00
NOTE.—\$5,000 of above required for general repairs marine bar- racks Brooklyn, N. Y., and \$4,000 for general repairs marine barracks Mare Island, Cal.			
HIRE OF OFFICERS' QUARTERS.			
Now estimated for and paid by the paymaster.			14,000 00
FORAGE.			
For three public horses, one for messenger to commandant and staff, Washington, D. C., and two for general use at marine bar- racks, Mare Island, Cal.		500 00	4,000 00

Estimates of appropriations required for the fiscal year, &c.—Continued.

Detailed object of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1879.
CONTINGENCIES.			
For freight, ferriage, toll, cartage, per diem for constant labor, funeral expenses of marines, stationery, telegraphing, apprehension of deserters, oil, gas, candles, repair of gas and water fixtures, water-rent, barrack furniture, furniture for government houses and offices, packing-boxes, bed-sacks, wrapping-paper, oil-cloth, crash, rope, twine, carpenters' tools, tools for police purposes, purchase of fire-extinguishers, purchase and repair of hose, repairs to public carryall, purchase and repair of harness, purchase and repair of hand-carts and wheelbarrows, purchase and repair of cooking-stoves, ranges, &c., stoves where there are no grates, gravel, &c., for parade-grounds, repair of pumps, and for other purposes.....		\$20,000 00	\$20,000 00
Total		213,981 50	214,000 00

W. B. SLACK,
Quartermaster, Marine Corps.

Approved and forwarded:
C. G. McCawley,
Colonel Commandant.

HEADQUARTERS MARINE CORPS, Paymaster's Office, September 21, 1878.

SIR: I respectfully submit herewith estimates for pay of officers, non-commissioned officers, musicians, privates, and others of the United States Marine Corps, for the fiscal year ending June 30, 1880.

These estimates show an increase of \$33,582 over the sum appropriated for the present fiscal year, as follows:

For additional pay to officers for five years' service	\$1,341
For pay of officers since placed on the retired-list	5,355
For increase to pay of leader of the band	132
For additional pay to privates for five years' service	6,000
For additional, for pay of ten clerks and two messengers	5,715
For payments to soldiers for clothing undrawn	5,000
For commutation of quarters for officers	10,000
Total increase	33,582

I am, very respectfully, yours, &c.,

GREEN CLAY GOODLOE,
Major and Paymaster, Marine Corps.

Col. CHAS. G. McCawley,
Commandant United States Marine Corps, Headquarters.

Approved and forwarded.

C. G. McCawley,
Colonel Commandant.

Estimates of appropriations required for the service of the fiscal year ending June 30, 1880, by the Paymaster of the United Marine Corps.

Detailed objects of expenditure, and explanations.		Estimated amount which will be required for each detailed object of expenditure.	Amount appropriated for the current fiscal year ending June 30, 1879.
PAY OF OFFICERS, NON-COMMISSIONED OFFICERS, MUSICIANS, PRIVATES, AND OTHERS OF THE UNITED STATES MARINE CORPS; FOR PAYMENTS TO DISCHARGED SOLDIERS FOR CLOTHING UNDRAWN, TRANSPORTATION OF OFFICERS TRAVELING WITHOUT TROOPS, AND COMMUTATION OF QUARTERS FOR OFFICERS WHERE THERE ARE NO PUBLIC BUILDINGS.			
1 colonel commandant	Rev. Stat. p. 271, sec. 1599; sec. 1623; acts of June 30, 1834 (4 Stat. at L., p. 713, sec. 4, 5), March 2, 1847 (9 Stat. at L., p. 586, sec. 1), February 21, 1857 (11 Stat. at L., p. 163, sec. 1), July 17, 1862 (12 Stat. at L., p. 594, sec. 2), June 30, 1864 (13 Stat. at L., p. 144, sec. 3), March 3, 1865 (13 Stat. at L., p. 487, sec. 1), July 31, 1866 (14 Stat. at L., p. 324, sec. 13), July 23, 1868 (14 Stat. at L., p. 407, sec. 37), March 2, 1867 (14 Stat. at L., p. 422, sec. 1), July 15, 1870 (15 Stat. at L., p. 517, sec. 7), January 14, 1876 (18 Stat. at L., p. 301, sec. 1); Navy Regulations, July 18, 1810.	\$4,500	
1 colonel		4,500	
2 lieutenant-colonels		8,000	
1 adjutant and inspector, 1 quartermaster, and 1 paymaster, 2 at \$3,500, and 1 at \$3,000 per annum		10,000	
4 majors		14,000	
2 assistant quartermasters, 1 at \$2,800 and 1 at \$2,600 per annum		5,400	
20 captains, 1 at \$2,520 and 19 at \$2,340 per annum		46,980	
30 first lieutenants, 15 at \$1,950, 13 at \$1,800, and 2 at \$1,650 per annum		55,950	
20 second lieutenants, 11 at \$1,540 and 9 at \$1,400 per annum		29,540	
1 brigadier-general, retired-list		4,125	
1 lieutenant-colonel, retired-list		3,000	
4 majors, retired-list, 3 at \$2,625 and 1 at \$2,250 per annum		10,125	
1 assistant quartermaster, retired-list		2,100	
3 captains, retired-list, 1 at \$1,620, 1 at \$1,485, and 1 at \$1,350 per annum		4,455	
2 first lieutenants, retired-list		2,700	
3 second lieutenants, retired-list, 1 at \$1,155 and 2 at \$1,050 per annum		3,255	
1 leader of the band		1,080	
1 sergeant-major, 1 quartermaster-sergeant, and 1 drum-major		1,080	
50 first sergeants		16,200	
140 sergeants, 90 at \$17 and 50 at \$22 per month		31,560	
180 corporals, 130 at \$15 and 50 at \$20 per month		35,400	
30 musicians, 7 at \$40, 8 at \$26, and 15 at \$23 per month		9,996	
96 drummers and fifers		17,736	
1,500 privates, 600 at \$13, 500 at \$16, and 400 at \$18 per month		276,000	
10 clerks and two messengers		15,715	
Payments to discharged soldiers for clothing undrawn		20,000	
Transportation of officers traveling without troops		5,000	
Commutation of quarters for officers where there are no public buildings		10,000	
		648,397	\$614,815

GREEN CLAY GOODLOE,
Major and Paymaster, Marine Corps.

HEADQUARTERS MARINE CORPS,
Paymaster's Office, September 21, 1878.

Approved and forwarded:
C. G. McCawley,
Colonel, Commandant.

19 N

UNITED STATES MARINE CORPS,
QUARTERMASTER'S OFFICE,
Washington, D. C., September 25, 1878.

SIR: I herewith respectfully inclose, to be forwarded to the Honorable Secretary of the Navy, abstract in duplicate of proposals to furnish rations, fuel, and supplies to the United States Marine Corps during the fiscal year ending June 30, 1879.

I am, very respectfully, your obedient servant,

W. B. SLACK,
Quartermaster, Marine Corps.

Col. C. G. McCawley,
Commandant United States Marine Corps, Washington, D. C.

Approved and forwarded.

C. G. McCawley,
Colonel Commandant.

Abstract of proposals received for furnishing rations, fuel, and supplies to the United States Marine Corps under the cognizance of the Quartermaster's Department.

PROPOSALS FOR RATIONS, UNDER ADVERTISEMENT DATED APRIL 30, 1878.

Stations.	Bidders.	Rations, per hundred.
Portsmouth, N. H.	N. F. Mathee	\$14 89
	John C. Gilbert	18 00
	Kimberly Bros	14 89
	H. W. Hall	*14 84
	Peters Bros	17 93
Charlestown, Mass.	Cyrus L. Brown	14 90
	N. F. Mathee	16 50
	Peter Higgins	15 19
	John C. Gilbert	16 50
	Kimberly Bros	16 74
Brooklyn, N. Y.	H. W. Hall	*15 00
	John Mullett	19 22
	Peters Bros	18 00
	N. F. Mathee	17 25
	John C. Gilbert	15 19
League Island, Pa.	Kimberly Bros	18 00
	H. W. Hall	*14 70
	John Harrison	15 25
	Stephen H. Mills & Co.	18 00
	Peters Bros	17 80
Washington, D. C.	Jacob M. Evans	30 01
	N. F. Mathee	17 70
	John C. Gilbert	22 00
	Kimberly Bros	16 74
	Samuel T. Reckless	20 00
Gosport Va.	H. W. Hall	*15 00
	John Benezet	16 13
	Theo. Canfield, Jr	17 25
	Peters Bros	18 60
	James I. Convery	19 75
Gosport Va.	J. T. Varnell	14 45
	N. F. Mathee	16 75
	John C. Gilbert	15 19
	Kimberly Bros	15 02
	Joseph G. Carroll	16 00
Gosport Va.	H. W. Hall	*13 40
	Peters Bros	17 50
	John H. Cannon	17 44
	N. F. Mathee	17 50
	John C. Gilbert	20 00
Gosport Va.	Kimberly Bros	15 09
	H. W. Hall	*14 50

* Accepted.

Abstract of proposals received for furnishing rations, fuel, &c.—Continued.

Stations.	Bidders.	Rations, per hundred.
Gosport, Va.—Continued.	Peters Bros	\$17 40
	Washington Taylor & Co	17 75
	Evans & Burwell	15 60
Annapolis, Md.	N. F. Mathes	19 50
	John C. Gilbert	21 00
	Kimberly Bros	15 09
	H. W. Hall	*14 70
Mare Island, Cal.	Peters Bros	17 90
	N. F. Mathes	19 94
	Kimberly Bros	17 74
	H. W. Hall	*17 34
	J. A. McInnis	20 99
	John E. Williston	23 00

* Accepted.

PROPOSALS FOR FUEL UNDER ADVERTISEMENT APRIL 30, 1878.

Stations.	Bidders.	Wood, per cord.	Coal, per ton.
Portsmouth, N. H.	N. F. Mathes	*\$5 22	*\$5 20
	George A. Hammond	8 00	
	Russell & Odion	6 00	5 50
	W. H. Sise		5 24
	Peters Bros	9 00	8 00
Charlestown, Mass.	Cyrus L. Brown	5 25	
	J. A. Wellington & Co	8 00	5 75
	C. A. Campbell	7 00	*5 28
	Peters Bros	9 00	8 00
Brooklyn, N. Y.	Cyrus L. Brown	*5 75	
	Murtha & Boyle		5 50
	Clark & Wilkins	*7 28	
	Albert T. Nathans	7 80	5 95
	B. F. Jayne & Co.	8 40	*4 48
Philadelphia, Pa.	Peters Bros	9 00	7 00
	James J. Convery	*6 40	*5 25
Washington, D. C.	Peters Bros	9 00	
	T. B. Cross, jr	4 28	4 45
	John Miller	4 34	4 73
	Stephenson Bros	5 00	5 20
	Norman L. Fowler	*4 00	4 55
	Samuel Emery	4 75	5 20
	Johnson Bros	4 40	4 67
	L. W. Guinand	4 39	4 43
	Z. Williams	4 25	*4 30
Gosport, Va.	Peters Bros	9 00	7 00
	Brickhaus & Barclay	*3 50	
	John Miller	6 00	6 00
	John W. Oast	4 00	
Annapolis, Md.	Peters Bros	4 23	*4 87
	John Miller	*5 50	
	Norman L. Fowler	6 00	
	Johnson Bros	6 00	
Mare Island, Cal.	Peters Bros	10 00	
	A. Powell	*8 00	15 50
	A. M. Ebbetts	10 49	13 95
	James McCudden	8 25	13 95
	Aden Bros	8 95	17 50
	Haste & Kirk	8 90	*13 25
	William Walker	8 00	14 00

* Accepted.

Abstract of proposals received for furnishing rations, fuel, &c.—Continued.

OFFERS FOR SUPPLIES UNDER ADVERTISEMENT DATED MAY 20, 1878.

Classes.	Bidders.	Amount.
Class No. 1.—Sky-blue kersey, dark-blue coat cloth, scarlet cloth, and flannel.	Wilson and Bradbury.....	\$13,200 00
	B. Y. Pippey.....	*13,637 50
	Joseph Ellinger.....	11,120 00
	Wilson and Bradbury.....	12,180 00
	Charles W. Hayes.....	†8,832 00
Class No. 2.—Dark-blue flannel, gray blankets, woollen socks.	S. M. Heilbrun.....	‡500 00
	B. Y. Pippey.....	†12,396 00
	Joseph Ellinger.....	3,525 00
	Wilson and Bradbury.....	†2,812 50
	Charles W. Hayes.....	†3,161 80
Class No. 3.—Linens, Canton flannel, and ticking.	B. Y. Pippey.....	†3,152 50
	D. L. Kattshofski.....	1,926 00
	Joseph Ellinger.....	3,347 00
	Charles W. Hayes.....	786 00
	J. H. Wilson.....	3,450 60
Class No. 4.—Hats, pompons, &c.....	E. R. Lyon.....	4,559 50
	B. Y. Pippey.....	802 50
	Charles F. Buah.....	†5,093 55
	Horstmann Bros. & Co.....	†4,340 65
	F. W. Maurer.....	†166 50
Class No. 5.—Buttons, bullion, yellow and scarlet lace.	Paul J. Field.....	†874 40
	J. H. Wilson.....	†886 05
	S. M. Heilbrun.....	†515 04
	Horstmann Bros. & Co.....	†1,403 05
	John Mundell & Co.....	9,262 50
Class No. 6.—Infantry and arctic shoes.....	Hecht Bros. & Co.....	†8,500 00
	Bay State Shoe and Leather Company..	9,000 00
	Charles W. Hayes.....	†767 50
	J. H. Wilson.....	†2,438 00
	S. M. Heilbrun.....	1,267 40
Class No. 7.—Cartridge-boxes, &c.....	Joseph Cogan.....	2,760 00
	Horstmann Bros. & Co.....	†2,268 30
	D. L. Kattshofski.....	‡77
	Joseph Ellinger.....	23 25
	Joseph W. Thorp.....	12 19
Class No. 8.—Making and trimming of clothing ..	B. Y. Pippey.....	*12 10

* Accepted.

† Accepted for part of class.

‡ Bid for part of class.

UNITED STATES MARINE CORPS,
QUARTERMASTER'S OFFICE,
Washington, D. C., September, 1878.

W. B. SLACK,
Quartermaster, Marine Corps.

No. 12.—REPORT OF COMMISSION ON SITE FOR NAVAL OBSERVATORY.

AN ACT to appoint a commission to ascertain the cost of removing the Naval Observatory.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the President be, and he is hereby directed to appoint, by and with the advice and consent of the Senate, a commission consisting of three persons, one of whom shall be a Real Admiral of the Navy, one of whom shall be a Colonel of Engineers, and one shall be chosen from civil life, whose duty it shall be to select a site, within the District of Columbia, for the United States Naval Observatory, such site to possess relatively the advantages of healthfulness, clearness of atmosphere, convenience of access from the City of Washington, and such other advantages as may be found expedient, and to report fully thereon including estimates of the total expense of said site and the removal of the Observatory, to the next session of Congress: *Provided, however,* That no member of said commission shall be, directly or indirectly, interested, for himself, or for any other person, in any property to be selected as a site for said Observatory.

SEC. 2. Said commission shall invite sealed proposals or offers of sale from the owners of land deemed fit for such a site, containing such provisions as they may deem sufficient to bind such owners to convey such land to the United States in case the same shall hereafter be selected and determined on as the site of said Observatory; which proposals shall be opened by the full commission publicly, and in the presence of persons interested who may choose to attend, on a day to be fixed for that purpose, after due notice to all parties interested; and no proposal received after such formal opening shall be opened or considered.

SEC. 3. Said commission shall also consider and report upon the propriety and expediency of disposing of the old observatory grounds and buildings, the best and most advantageous method of selling the same, and the probable sum which may be realized therefore.

SEC. 4. Said commissioners may if they deem it necessary in order to secure the best site for said observatory examine any premises within said District not offered for sale as before provided which may seem eligible, and may report their estimate of the cash market value of the same.

Approved, June 20, 1878.

To the PRESIDENT OF THE UNITED STATES:

The undersigned, commissioners appointed by the President under the act above cited respectfully report that they entered upon their duties by meeting at the Navy Department, Washington, and organizing, on the 15th of July, 1878; Rear-Admiral Ammen acting as chairman under appointment.

To fulfill the second section of the law, the commission proceeded at once to prepare a form of advertisement, inviting "sealed proposals," or "offers of sale," of which a copy (marked A) is appended to this report.

This advertisement was published weekly in eight of the Washington papers from July 29 to the day fixed for the public opening of the bids (August 28).

On the 28th of August, at 12 o'clock, the proposals were publicly opened by the commission in the board room of the Navy Department, in the presence of a large number of parties interested. Seventy-nine proposals were received, a schedule of which (marked B) will be found appended to this report.

As the analyzing, arranging, recording of the bids, and locating the situations on the chart of the District required time and considerable clerical labor, and as the commissioners were individually under pressure of other duties or engagements, it was concluded to adjourn till the 8th (subsequently changed to the 14th) of October; the two commissioners residing in or near Washington—the chairman being one—to make in the mean time preliminary examinations of all the sites offered. During the interval which elapsed between the adjournment and succeeding formal meeting (October 14) such preliminary examinations were made by personal visits of both the resident commissioners to all the sites offered.

On the 14th of October the commissioners assembled again, and after discussion and consideration of the results of the preliminary examinations, proceeded, accompanied by the Superintendent and Professor Hall, of the Observatory, to revisit all the sites for which those examinations had shown any considerable claims of eligibility.

Subsequently, at the suggestion of the commission, the entire corps of professors on duty at the Observatory (five in number) was directed by the Superintendent to visit all the sites which the examinations already described brought within the category of superior eligibility.

The result of these repeated and varied examinations was to reduce to a very small number the locations from which the choice should be made. Of these, No. 18 of the schedule, known as "Clifton," formerly owned and improved by Col. Charles Ellet, and now the property of James Elverson, of Philadelphia, was placed originally either first, or in a very high grade of eligibility, by all who made the examinations, whether members of the commission or experts of the Observatory, and it was the *first* choice of a large majority. It may, therefore, be called their unanimous choice, as combining as well or better than any other the "advantages of healthfulness, clearness of atmosphere, convenience of access from the city of Washington," commanding position, abundant supply of pure water; with seclusion, exemption from the heated air and smoke of the city, and from dust; from disturbance by railways or roads, and (owing to the contour of the ground) from detrimental occupation of closely-adjoining lands. We may properly add, that the Observatory would be in full view from the Capitol, which, from base to summit, is seen from the proposed site.

Again, while in the location of a national institution so important as this Observatory, the commissioners would not allow the question of mere cost of site to overrule that of eminent fitness, yet, other things being nearly equal, their obvious duty has been to give a proper weight to comparative cost. An examination of the schedule of bids will show that of land not very remote, or of sites at all well situated, it is among the least costly, while contiguous to the site, on Rock Creek, are quarries of building stone available for the new structures.

The tract is directly west of Rock Creek and north of Georgetown Heights, from which it is separated by the deep valley of a small tributary to Rock Creek. The opposite slopes of the valley are occupied by the Oak Hill Cemetery and the grounds and residences marked on Boschke's chart "Boyce," "Linthicum," and others, fronting on Road street. On the east, the site slopes toward Rock Creek, from which, however, it is separated by a narrow strip of land. On the north is the valley of another small tributary of Rock Creek, and the grounds and house (marked on the chart "R. Barnard's heirs") now owned by Dr. Cissel. The ravine first named bounds the property on the west, beyond which are the grounds of Mr. Weaver and others, lying on the Tennytown road. Northwest, having a short length of boundary line in common, are the residence and beautiful grounds of Mrs. Barber, a place which favorably competed with this for choice. Portions of the two small tributaries of Rock Creek mentioned run within the limits of the chosen site, and an unusually fine spring is located convenient to the highest ground; these, by means of rams, or other machinery, will furnish an ample supply of water for all purposes, precluding an unsatisfactory dependence on wells and rain-water collection, on which many of the sites we have examined would mainly depend for water-supply.

Gas is easily made available from Georgetown, and even the high-service Potomac-water supply can be resorted to, if it ever be deemed expedient. The elevation is roughly determined at 230 feet, a height 130 feet greater than that of the present Observatory, and one regarded as quite sufficient.

The present access is by Pennsylvania, Massachusetts, or Connecticut avenues, to Road street, Georgetown, whence a branch road, a few rods in length, lying between the Boyce and Linthicum estates, leads direct to the property. The distance is comparatively short.

The commissioners believed that the requirement of the law as to "convenience of access from the city of Washington" for such an establishment, where a degree of seclusion is desirable, to be sufficiently fulfilled;

but free right of way having been offered from Road street, Georgetown, through the Linthicum estate, and from the Tennallytown road through the land of Mr. Joseph Weaver, these concessions have been obtained in writing. The possession of these rights gives varied direction of immediate access and amelioration of grades. Copies of the conceded rights of way will be found in papers marked C and D.

The future extension of Massachusetts avenue will strike the southern slope of the "Clifton" hill, and thus give an air-line approach.

The area of the chosen site is about what the commissioners originally named as the most desirable for the new establishment. There is amply sufficient extent of plateau, nearly level, for the Observatory building; while the slopes offer convenient sites for officers houses, to be located below the horizontal range of vision from the Observatory. The existing dwelling, a three-story frame building, in good repair, though not of modern construction, may perhaps be made available; but not improbably must be removed, as occupying ground needed for the Observatory, or as obstructing the range of the instruments. Its value is not, therefore, considered in determining the choice. And we might here incidentally remark, that costly dwellings which, in some few cases, occupy other proposed sites and enhance their price, are all subject to the same comment.

Closely adjoining the northwestern corner of the property is a quite small area of ground comprised within the boundaries of Dr. Cissel's property (the "R. Barnard" place of Boschke's map) which is a few feet higher than the plateau of the chosen site. The astronomers of the Observatory do not regard this as at all objectionable as it now is; but as they think it might be made somewhat so by the erection of buildings, a tract of $3\frac{1}{4}$ acres in extent, which more than comprises the area in question, has been purchased by Mr. Elverson, and added to the $41\frac{3}{4}$ acres of the "Clifton" place, thus making up the total of 45 acres offered in his original bid.

In a region possessing so many advantageous and beautiful sites, it is scarcely necessary to say that the commissioners, in making choice of one, by no means deny high claims to a great many others offered to them. Some which possess very eminent claims of a certain kind may be either too near the railroads or highways; too close to the dense portions of the city, the dust, smoke, and heated air of which are objectionable; or liable to be surrounded with buildings on contiguous ground; or, on the other hand, too remote and inaccessible; too scantily supplied with water, badly shaped topographically, &c.

Finally, the commissioners respectfully report that in fulfillment of their duties under the first and second clauses of the act, they have chosen the property known as "Clifton," and described in the proposal or bid No. 18 of the schedule, of which a copy, with plat, is appended (marked E); the area of the same being (including the small tract added from Dr. Cissel's place) 45 acres; the cost \$667 per acre, or \$30,015.

Besides the choice of site the duty is imposed on the commissioners "to report fully thereon, including estimates of the total expense of said site and the removal of the Observatory." It became necessary as a preliminary to the execution of the latter duty to inform ourselves as to the general features and exigencies of structures which shall supersede the existing ones; for "removal" in this case means new construction, which should be on new and improved plans. For this purpose conference was had with the Superintendent of the Observatory, Rear-Admiral John Rodgers, who attended several of our meetings and accompanied us to the Observatory to examine the present arrangements and their uses. He also exhibited to the commission a plan and elevation of a proposed

new Observatory building, embodying arrangements approved not only by the executive officers of the Observatory, but also by the eminent astronomers of the United States, whose views were obtained in answer to a circular letter generally distributed.

While there is no power given the commission or to others to decide upon a particular plan, some such provisional plan, as a basis of the estimates required, was indispensable to an intelligent execution of the law. We deem it proper to say, however, that our own general views correspond with those which characterize the plans submitted to us, and on which we have based our estimates, viz: That in constructing these buildings, a National Observatory should be provided, which, while satisfying the practical astronomical exigencies of the military and commercial marine of the United States, shall also meet the higher and more universal demands of science, by equality in all its material means with other great national observatories.

The general arrangements involved in the designs submitted to us have been governed by this idea.

The paper appended (marked F) gives, as furnished by the Superintendent, a brief description of the proposed building; its general shape and a statement of the use and necessity of each and all the rooms, domes, and appurtenances. The description is illustrated by a photolithographic sheet showing the ground plan and horizontal sections of the basement and upper stories.

In carrying out the design the commissioners believe that, avoiding unnecessary costliness either in materials used or in producing architectural effects, the building should be, if simple, yet architecturally creditable; and moreover that it should be fire-proof.

Appended to this report is a "specification" (marked G) in detail of the material character of the proposed construction, accompanied by an estimate of cost.

The various items of cost, after computations of quantities of materials and workmanship, were verified by consultation with responsible undertakers or furnishers of the various kinds of work and objects enumerated. The total cost, so ascertained on the basis assumed, was found to be \$161,364.68.

Considering, however, that no complete design has been yet prepared and that the present rates for materials and workmanship are exceptionally low, we deem it prudent, in order to cover such contingencies, and likewise the cost of surveys, and architect's work and superintendence, to add an item of 25 per cent. to the above.

We are now prepared to estimate the total expense of the site and of the removal of the Observatory as follows:

Cost of site.....	\$30,015 00
Amount of estimate for Observatory building.....	161,364 38
Contingencies on same, 25 per cent.....	40,341 09
Removal of instruments.....	3,000 00
Furnishing, including, besides necessary room furniture, the cost of instrument-cases and shelves; library shelves (the iron frame-work being included in cost of building); computing and drawing tables, &c.....	5,000 00
Inclosure (substantial wooden fence).....	3,500 00
Superintendent's and professors' quarters, and buildings for persons employed.....	85,000 00
Expenses connected with the site which cannot now be minutely estimated, such as additional grading and road-making; improvement of grounds; apparatus, or machines external to the buildings themselves; for introducing gas or water, &c.....	21,779 53

Total..... 350,000 00

Making a general total of three hundred and fifty thousand dollars.

It should be remarked that the items for "removal of instruments," for "furniture," for "Superintendent's and professors' quarters," &c., have been obtained from the Superintendent, Rear-Admiral Rodgers.

A copy of the estimates furnished us for accessory buildings is appended (marked H). It is based on the assumption that all persons connected with the Observatory shall reside on the grounds. At present the professors or astronomers of the institution have no adjacent residences provided, a deficiency which ought to be remedied in the new establishment, since only by such close contiguity can all the moments of the night favorable for observation be fully secured.

The item for accessory buildings is perhaps somewhat in excess of present necessity, but it has been deemed proper to make it ample for the ultimate needs of an observatory of the first magnitude as this is designed to be.

We now turn to the duty assigned us in the third section of the act.

The commissioners are unanimously of the opinion that it would not be advisable to dispose of the site of the existing Observatory at present:

First. Because the present depressed condition of the real-estate market would prevent the realization of its true value; and

Second. Because the same feature of the ground which would make it less valuable for private purposes, namely, its height above the grade of the surrounding streets, gives it additional value for public purposes, in the large quantity of material furnished by that elevation, all of which must eventually be used in filling the marshes bordering the river in the immediate neighborhood. In this connection the "Board of Survey," for the improvement of the harbors of Washington and Georgetown, organized by act of Congress approved March 5, 1872, reports, §46, as follows:

Reservation No. 4, at the southwest edge of the city, on the Potomac * * * is located on a high hill, requiring very steep grades in the adjacent streets. Along the foot of this hill runs the water front in such close proximity as to render it totally unsuitable for any business purposes. The necessities of the improvements in this part of the city demand the reduction of this hill and high grounds to such grades as the authorities of the District may deem necessary to meet the emergencies of the case. Unfortunately, upon this reservation is located one of the best, most ably conducted and valuable scientific institutions of the government, viz, the Naval Observatory. Although it is most important that this hill be reduced, it should not and must not be at the expense of the slightest injury to this important observatory, but, on the contrary, to its great advantage.

Very much better locations can be found within the District. * * *

The materials from this hill can be most profitably used for filling the low grounds between it and Seventeenth street west, as well as the reclaimed lands.

The now intended removal of the Observatory leaves the site free to be adapted to the exigencies of harbor and water-front improvement; to furnish its surplus earth to the purposes for which the board of survey demands it.

A careful topographical survey of the reservation has been made by Professor Harkness, the result of which is to ascertain the amount of earth above the probable grade-surface to be 1,075,900 cubic yards; enough to raise 10 feet a superficial area of 326,000 square yards, a large proportion of the extensive area mentioned by the board of survey as well situated to receive it. An execution of the plan, if ever undertaken, will therefore require, and make it important to have at command, all of this earth.

It would seem wise, therefore, in this point of view, as well as on account of the inadequate price which could now be obtained, to retain the present reservation, the market value of which would be greatly enhanced by the grading. A plat of the ground, with the contour lines

drawn and the position of the buildings shown, is annexed to this report (marked I).

It has been officially appraised, in response to the call of the honorable Secretary of the Navy, for making up an inventory of property belonging to the Navy Department, at \$8,000 per acre, or \$142,000 for the whole area of 17.85 acres. The commissioners do not think that more than a small fraction of this sum could now be realized if exposed for public sale. If retained, as we recommend, we feel confident not only that better prices can be ultimately obtained, but that the intrinsic value will increase; but any estimate we could now make of such value would be illusory, as it would depend not merely on the restoration of values of real estate and the normal growth of the city, but upon contingent works of harbor and water-front improvements.

We consider it best to dispose of the materials contained in the existing buildings as soon as they are evacuated, at public sale, rather than suffer them, by remaining unoccupied, to become dilapidated.

The brick wall surrounding the reservation contains about 400,000 bricks. These and the bricks contained in the buildings themselves, about one-fourth as many more, cannot be estimated higher than \$2 per thousand, from all which perhaps \$1,000 may be realized, and from the sale of other materials, including doors and frames, window-sashes and frames, metals and pipes or heating apparatus, a few thousand dollars more; perhaps \$5,000 in all, which, therefore, is the "probable sum that may be realized" for the improvements; the only sum which at present, under our point of view, the government could realize from the grounds and buildings, retaining, however, the ground for an ultimate enhanced future value and for use of its superfluous earth in the improvement of the water-front.

Respectfully submitted.

DAN'L AMMEN,

Rear-Admiral and Chairman of Commission.

J. G. BARNARD,

Colonel of Engineers, Brevet Major-General, U. S. A.

LEONARD WHITNEY.

NAVY DEPARTMENT,

Washington, D. C., December 7, 1878.

A 1.

PROPOSALS FOR SITE FOR NAVAL OBSERVATORY.

NAVY DEPARTMENT,

July 16, 1878.

The undersigned have been appointed a commission under an act of Congress approved June 20, 1878, "to select a site within the District of Columbia for the United State Naval Observatory; such site to possess relatively the advantages of healthfulness, clearness of atmosphere, convenience of access from the city of Washington, and such other advantages as may be found expedient; and to report fully thereon, including estimates of the total expense of said site, and the removal of the Observatory, to the next session of Congress."

The second section of said act reads as follows:

SECTION 2. Said commission shall invite sealed proposals or offers of sale from the owners of land deemed fit for such a site containing such provisions as they may deem

sufficient to bind such owners to convey such land to the United States in case the same shall hereafter be selected and determined on as the site of said Observatory; which proposals shall be opened by the full commission publicly, and in the presence of persons interested who may choose to attend, on a day to be fixed for that purpose, after due notice to all parties interested; and no proposal received after such formal opening shall be opened or considered.

In accordance with the above provisions, sealed proposals for such site will be received until noon of the 28th day of August next, at which time they will be publicly opened at the Navy Department in the presence of such persons interested as may choose to attend, and this is due notice of said opening.

Proposals must be indorsed "Proposals for site for Naval Observatory," and directed to the "Commission to ascertain cost of removing the Naval Observatory, care of the Secretary of the Navy."

Said proposals must give metes and bounds by which the property is described, and be accompanied with a plat of the same, and conform to conditions of the second section of the act above quoted.

The quantity of land required will be not greater than fifty (50) acres, nor less than twenty (20) acres, and the price must be stated per acre, subject to accurate survey.

If parties offering a tract larger than twenty (20) acres are willing to give the option of taking any quantity not less than that area at the stipulated or a modified price, they will so state in their proposals.

Blank forms for proposals may be obtained at the Navy Department.

Proposals must be signed by the owner or owners of the property.

DANIEL AMMEN,
Rear-Admiral, U. S. N.

J. G. BARNARD,
Colonel and Breret Major-General.
LEONARD WHITNEY.

A 2.

COPY OF BLANK FORM.

Proposal for sale to the United States of a site for the Naval Observatory.

To the Commission to ascertain cost of removing the Naval Observatory :

GENTLEMEN: The undersigned, owner of the property hereinafter described, hereby offer and agree to sell the same to the United States, and guarantee good title, for the sum of _____ dollars per acre; or to give the United States the option to take any portion of the same at _____ dollars per acre.

Said property contains about _____ acres, and is situated _____, and is more particularly described by the following metes and bounds:

The plat of the same, conforming to the above metes and bounds, is appended.

This offer and agreement to be binding upon the undersigned in case of the location of the said Naval Observatory upon the land above described, or any portion thereof.

And we further bind ourselves in the penal sum of _____ for the faithful performance of this agreement.

B.

Schedule of offers from owners of land for proposed site for Naval Observatory under advertisement dated July 16, 1878.

[Bids received until noon August 28, 1878. Opened and scheduled August 28, 1878, under the direction of the commission appointed in pursuance of act of Congress approved June 20, 1878.]

NAVY DEPARTMENT,
August 28, 1878.

Number of bid.	Names of bidders.	Number of acres in tract.	Price per acre at option.	Price per acre for whole tract.	Remarks.
1	Ezra W. Clark	25.85	\$800	.....
2	Gardner & Weaver	20	2,780	.....
3	do	16	1,800	.....
4	Elizabeth A. Beale	30	1,000	\$500 00	
5	Emery Chapel and others	2.68	.....	*3,171 64	* Or \$8,500 for whole.
6	David Moore	20	2,000	.....
7	J. H. C. Young, trustee	*66	*800	*600 00	* 50 acres offered at \$600 per acre, or at option at \$800 per acre.
8	Claggett & Van Riaswick	108.6	\$25	.....
8 ¹	do	50	.....	500 00	
9	do	50	.....	400 00	
9 ¹	do	50	.....	300 00	
10	do	20	.....	1 00	
11	Otis S. Presbrey and others	37	.....	3,100 00	
12	do	44	.....	3,500 00	
13	King & Pettibone	20	350	300 00	
14	Elizabeth J. Stone	28	*7,840	7,840 00	* If not less than 20 acres are taken.
15	do	29.2	5,227	.....
16	do	30	3,920	.....
17	do	33.5	3,049	.....
18	Elverson & Sherman	45	833	687 00	
19	Sally Smith	63	500	600 00	
20	H. F. Davis	38.25	1,200	850 00	
21	Savles J. Bowen	50	350	250 00	
22	B. T. and S. A. Swart	80	300	300 00	
23	Jane J. Nicholson	40	.....	650 00	20 acres, with improvements, at \$440.
24	Mary M. Manning	50	1,000	1,000 00	
25	J. and M. A. Hoover	27.11	350	350 00	
26	Ida Moore	27	.....	1,500 00	
27	Alexander Fairly	50	.....	400 00	
28	M. J. Clark	15.5	.....	1,250 00	* Adjoining.
29	L. D. Means and A. F. Offutt	27.75	400	300 00	
30	Edwin O. Reed	20	2,500	2,500 00	
31	William Stickney, secretary	.....	.....	.....	Number of acres and price per acre not stated.
32	Archibald White	50	1,200	1,200 00	
33	J. Addison Smith	42	400	250 00	
34	L. D. Means and A. F. Offutt	22	400	400 00	
35	William T. Okle	44.5	95	95 00	
36	W. W. Corcoran	104	200	200 00	
37	M. J. and R. M. Nourse	30	500	500 00	
38	L. D. Means and A. F. Offutt	49	.....	600 00	\$400 per acre for any part not including buildings, &c.
39	McCormick & Scaggs	45 or 50	*100	100 00	* If less than 10 acres, \$125 per acre.
40	Sophia Snyder	91	.....	500 00	Or a certain 42 acres, at \$700, or any portion, not less than 20 acres, if laid off from east side of 42 acres, or give the option of taking the portion of said property farthest from Tennytown road, containing about 49 acres, at \$600 per acre, or any part of said portion, not less than 20 acres, for \$350 per acre.
41	A. T. Brittan and W. B. Moses	22	1,500	1,000 00	
42	James L. Davis	42	500	400 00	
43	do	46	.....	600 00	
44	Mary and Elizabeth Queen	80	400	400 00	
45	H. C. Holt, M. D.	25.73	2,000	2,000 00	
46	John A. J. Creswell and others	50	800	800 00	
47	do	65	100	100 00	
48	H. S. Walbridge	90	1,000	650 00	
49	A. R. Shepherd and L. F. Hoffman	28	.....	300 00	
50	Julia Lawson and V. Weaver	23.34	.....	250 00	
51	B. H. Warner & Co.	23	.....	1,500 00	
52	do	53.5	200	150 00	
	do	48	200	150 00	

Schedule of offers from owners of land for proposed site for Naval Observatory, &c.—Continued.

Number of bid.	Names of bidders.	Number of acres in tract.	Price per acre at option.	Price per acre for whole tract.	Remarks.
53	B. H. Warner & Co.	60	.....	\$300 00	\$18,000 for whole.
54	do	20	.....	150 00	
55	Alfred D. Jessup.	(*)	\$500	500 00	* Number of acres not given.
56	Rev. P. T. Heally, president. {	75	.....	300 00	* Or more.
		*50	.....	500 00	
57	G. F. Green	44	1,250	1,000 00	
58	S. Blagden	347.56	500	275 00	
59	Valentine Walker	29.75	300	175 00	
		18½	.....	3,340 00	
60	L. R. Tuttle and George Bell. {	7½	.....		{ Amounting to \$45,838; error; should be \$61,233.33.
					{ For \$40,000.
61	Jane McCrabb and C. A. Talbert	23.43	.....	250 00	
62	George S. Lovett.	40.75	3,000	2,000 00	
63	do	23.66	.....	6,500 00	
64	Christopher S. O'Hare	40	500	500 00	
65	do	17	1,000	1,000 00	
66	Bridget Fitman heirs	30	350	300 00	
67	J. W. Paine and E. P. Warren	205	*1,500	1,000 00	* Of not less than 20 acres.
68	S. E. Middleton	34	1,500	1,200 00	
69	Mrs. S. M. J. Gales	50	2,000	2,000 00	Except northwest 10 acres.
70	M. C. Barber	70	.....	1,428 57	\$100,000 for whole tract.
71	Catharine P. French	125	500	500 00	
72	William Dickson, agent	40	600	500 00	
73	N. P. Chipman and others.	40	*5,500	4,500 00	* It shall divide a line running parallel with Boundary street.
74	William Linkins and Jos. Casey.	5	5,000	5,000 00	
75	H. Kengla and R. Britt.	52.5	3,000	2,500 00	
76	M. A. Hunt and J. H. Kengla.	43	.....	2,000 00	
77	Jacob H. Kengla	35	.....	1,000 00	
78	J. Pierce Klinge	50	.....	1,000 00	
79	Archibald White.	178	1,000	1,000 00	Except 20 acres, at \$2,500 per acre.
80	George Taylor and others.	29	.....	*6,595 00	* Excluding the streets.
81	do	29	.....	*5,571 00	* Including the streets.
82	do				NOTE.—Certain parties claim in addition to the price per acre for the above land the value of their improvements, amounting in all to \$20,250. (See bid.)

C.

THE OAKS, GEORGETOWN HEIGHTS, D. C.,
November 23, 1878.

SIR: On condition that the United States Naval Observatory shall be located on the site known as "Clifton," adjoining us on the north, I offer, as trustee of the Linthicum estate, to give to the United States the free right of way through the land of said estate, for a road not exceeding sixty feet wide, to said Clifton, beginning on Road street at the head of Valley street, Georgetown, or thereabout, and running by the most direct and suitable route, to be located by the United States engineer, to a point just above the dam on the Linthicum land, on the boundary line of the two places: said right of way to terminate whenever said Clifton shall be abandoned, if ever, as the site for said Observatory.

On the return of my co-trustee, Mr. William Laird, jr., who is now absent from the District, a more formal agreement can be executed, if desired, embodying the conditions contained in a draft which I have received from Mr. Whitney.

Very respectfully, &c.,

JOSIAH DENT,
Trustee.Rear-Admiral DANIEL AMMEN, U. S. N.,
Chairman.

D.

This indenture made this twenty-seventh day of November, 1878, between Joseph Weaver, of the District of Columbia, party of the first part, and the United States of America, party of the second part, witnesseth:

That whereas it is contemplated that the party of the second part may locate and erect a new Naval Observatory building on the property known as "Clifton," situated north of Georgetown, in the District of Columbia, and now owned by James Elverson, of the city of Philadelphia, State of Pennsylvania, which property of "Clifton" adjoins the lands of said party of the first part: Now, therefore, the said party of the first part, for and in consideration of the sum of one dollar to him in hand paid by said party of the second part, the receipt whereof is hereby acknowledged, and upon the condition that said Observatory shall be located as aforesaid, does agree for himself, his heirs, and assigns, to grant, and does hereby grant to the said party of the second part, a free right of way for a roadway to said property known as "Clifton," through the lands of said party of the first part, from the Tenallytown Road—said roadway to be located on a straight line parallel to the line which runs N. 62° E. between the land now owned by heirs of Morris Adler and the lands of the party of the first part, and the southernmost boundary of said roadway to be five feet distant from said line, so as to reserve to the party of the first part the control of the strip of ground five feet wide between said roadway and the said land of heirs of Morris Adler, the said roadway to be not more than sixty feet in width, and to be opened, improved, and maintained at the cost of said party of the second part. And said party of the first part, for himself, his heirs and assigns, does further agree that he or they will, on demand of the party of the second part, execute such other instruments of writing as the Attorney-General of the United States may deem necessary to carry into effect the true purpose and meaning of this indenture.

JOSEPH WEAVER.

COUNTY OF WASHINGTON, *to wit* :

I, Mayhew Plater, a notary public in and for said county, in the District of Columbia, do hereby certify that Joseph Weaver, party to foregoing deed bearing date this twenty-seventh day of November, 1878, personally appeared before me, in my county aforesaid, the said Joseph Weaver being personally well known to me to be the person who executed said deed, and acknowledged the same to be his act and deed.

Given under my hand and notarial seal this twenty-seventh day of November, 1878.

MAYHEW PLATER,
Notary Public.

E.

PROPOSALS FOR SALE TO THE UNITED STATES OF A SITE FOR THE
NAVAL OBSERVATORY.

To the Commission to ascertain cost of removing the Naval Observatory :

GENTLEMEN: The undersigned, owner of the property hereinafter described, hereby offers and agrees to sell the same to the United States, and guarantee good title, for the sum of \$30,000, or \$677 per acre, or to

give the United States the option to take any portion of the same at \$833 per acre.

Said property contains 45 acres, and is situated in the county of Washington, being parts of a tract of land called "the Rock of Dunbarton," or the addition to the Rock of Dunbarton, or "Pretty Prospect," or "CLIFTON," consisting of four several parts, now united in one, which were held by Brooke Mackall, and by him sold to Henry Gildemiester, and is more particularly described by the following metes and bounds: Bounded on the south by the lands of Edward Linthicum; on the west by the lands of Morris Adler and E. A. Eliason; on the north by the lands of Margaret C. Barber and Robert Barnard's heirs; and on the east by the lands of William Morton and Robert Barnard's heirs; containing in all 45 acres, more or less, being the same land conveyed, under date of May 20, 1857, by Charles Ellet, jr.; said deed being recorded in liber J. A. S., No. 131, folio 189, *et seq.*

Should the commissioners prefer "Clifton," but think the price higher than that asked for desirable property, I will agree to convey the whole or, say, 30 acres of the above at a fair valuation, said valuation to be made by competent parties appointed by the commissioners. The plat of the same, conforming to the above metes and bounds, is appended.

This offer and agreement to be binding upon the undersigned in case of the location of the said Naval Observatory upon the land above described, or any portion thereof.

And we further bind ourselves in the penal sum of \$2,000, for the faithful performance of this agreement.

JAMES ELVERSON,
JOHN SHERMAN,
Saint Cloud Building.

E.

To the Commission to ascertain the cost of removing the Naval Observatory:

GENTLEMEN: Having proposed to your commission to sell the property known as "Clifton" to the United States as a site for the Naval Observatory, and as it is represented that it contains a less area than was supposed by me when the proposition was submitted, by about $3\frac{1}{4}$ acres; and as it is further represented that the same amount of the high ground adjoining said "Clifton" on the northwest, belonging to Dr. R. S. T. Cissel, would be a desirable addition to "Clifton" as a site for the Observatory, I now state that I have acquired title to said high ground, about $3\frac{1}{4}$ acres in extent, and hereby obligate myself, in case "Clifton" is selected as the site for the Observatory, to include said tract in the conveyance of said "Clifton" to the United States at the same price per acre, namely, \$667, leaving it optional with the United States to accept or reject such proposed addition.

Said proposed addition is more particularly described as follows: Beginning for the same at a black-oak tree in the northernmost corner of "Clifton," which tree is also the corner between "Clifton," "Normanstone," and the lands of Mrs. M. C. Barber; thence running northwesterly, on the line between "Normanstone" and the said lands of Mrs. Barber, 25 perches; thence south 87 degrees east, 10 perches; thence south 30 degrees east, 16 perches; thence south 2 degrees west, 23 perches, more or less, to the boundary line between "Normanstone" and "Clifton"; thence with said boundary line to the place of beginning; containing $3\frac{1}{4}$ acres, more or less.

JAMES ELVERSON.

WASHINGTON, D. C., December 4, 1878.

F.

GENERAL DESCRIPTION OF PROPOSED OBSERVATORY BUILDING.

The main building runs 142 feet east and west, with wings, making the whole front 239 feet long, and an extension from its central part runs 172 feet south of the main building.

The shape is deemed most advantageous in practice. Extension east and west is needed, in order to get space for the transit rooms, which need a clear view north and south, and practical isolation; and the large telescope is placed at the south end of the extension, since the planets moving in the ecliptic, a clear view of it, unobstructed by impediments of any kind, is most important.

The library is convenient to all parts of the Observatory, and the distance of the great telescope is purposely made great, since this distance is usefully employed in the prime-vertical room and computing-room for the necessary calculations of the observers.

The body of the main building is not more extended than the uses of the institution demand. Not a single room can be considered a large one, except possibly the library, of which the size is made necessary by our constantly increasing store of books.

The accompanying general plan may be consulted in connection with the description.

General description.

The proposed Observatory building consists of—

A main building, 142 feet 4 inches by 55 feet 4 inches, of two stories, with a basement.

The basement, besides being used for storing instruments and traveling-boxes for them, is also a receptacle for the miscellaneous property of the Observatory. In any case, the main floor should be removed from the surface of the soil by having a cellar under the building.

The basement contains—

1. Storerooms.
2. Galvanic-battery rooms.
3. Boiler-rooms. (It remains, however, for future consideration whether the boiler had better be inside the building or apart from it.)
4. Coal-rooms. (It may be better to have a separate vaulted cellar for coal outside the main walls of the building.)
5. Long room, for optical experiments.

The ground floor contains—

1. The business office of the Superintendent.
2. Visitors' room.
3. Office-room for clerk of the Observatory.
4. Watchmen's room.
5. Fire-proof record-room, for computations, manuscripts, &c.
6. Instrument-maker's room, repair-shop, &c.
7. Room for the chronometers of the Navy.
8. Office-room for officers of the Navy having charge of the chronometers.
9. Clock-room for astronomical clocks.
10. Room for measuring-engine now used in measures of the transit-of-Venus photographs.

The second floor contains—

1. Photographic rooms.
2. Offices for five professors.

3. Computing-rooms for three assistant astronomers and four computers.

This main building is surmounted by three domes.

Dome C (see plan) is to cover the 9-inch equatorial now at the Observatory.

Dome B is to cover one of the 5-inch transit-of-Venus equatorials, now mounted in a wooden house in the Superintendent's garden.

Dome A is to cover the present comet-seeker of the observatory, now without any special protection.

On each side of the main building, and on the level of the ground floor, are two transit-rooms, 30 by 40 feet. One is to cover the present transit-circle; the other for the present transit and mural circle. It is hoped, however, in the future, to replace the mural circle by a more modern instrument.

These rooms are to be separated from the main building by the halls or vestibules, for isolation, each 15 feet long by 8 feet wide.

The vestibules or halls connecting the main building with the out ones, might have been compressed, but in order to avoid disturbance of atmosphere, it was thought best practically to isolate them.

Back of the main building is a library-room 36½ by 50 feet. Back of this is a room to cover the present prime vertical transit instrument. Back of this, is the dome to cover the 26-inch equatorial, with computing-rooms for one professor and one assistant.

G.

UNITED STATES NAVAL OBSERVATORY.—SPECIFICATION OF MANNER OF CONSTRUCTION.

Position.

It is assumed in the estimate that the ground selected will be a plateau of sufficient area, and that the floor of the basement story will be nine feet below the natural surface. This gives the first item "excavation."

Materials.

The walls of the basement story to be of rubble-stone masonry, the exterior wall to be faced with brick on the outside from the bottom of the area-way, and the floor to be of concrete.

Above the floor of the first story, the eastern and western transit-rooms, the prime vertical transit-room, the rooms for the 26-inch and 9.6-inch equatorials, and the domes to the east and west of the latter, to be constructed entirely of iron, covered outside with galvanized sheet-iron, and lined inside with tin. The northern or main portion of the building, the library and the professors' rooms, near the 26-inch equatorial, to be of brick, the walls to be built hollow.

All the floors to be of brick arches, supported by iron beams of suitable dimensions.

These arches to be covered with concrete, and the tile or pine flooring to be laid in the usual manner.

The steps entering the northern or main portion of the building, and all the sills of windows through masonry walls to be of cut stone.

The piers for the instruments to be of dark Croton brick or similar material.

All the roof coverings to be of galvanized sheet-iron.

Interior walls to be plastered; the plastering for the ceilings is omitted in the estimate.

Vertical dimensions.

Basement story to be 12 feet in the clear.

First story of the northern or main portion of the building to be 16 feet in the clear; the floor of this story, which is common to the whole structure, is taken at 4 feet above the natural surface of ground.

The second story to be 14 feet in the clear, and above this story an air space 6 feet in height is estimated for.

The eastern and western transit-rooms each to have a height of 24 feet from floor to eaves.

The library, which is to have the book-cases and shelves placed as shown in plan, and two galleries above its floor, communicated with by stairways at each end of the room, is to be 23 feet from floor to eaves.

The prime vertical transit-room to be 16 feet from floor to eaves.

The professors' rooms near the 26-inch equatorial to be 16 feet in the clear.

The center of hemispherical dome of the 26-inch equatorial is taken at such a height that a line drawn from it tangent to the dome of the 9.6-inch equatorial north of it will make an angle of 12° with the horizon.

The piers for the instruments are only estimated for up to the floors of the rooms in which the instruments are to be mounted, and the apparatus for moving the shutters from over the slits in the roofs of the transit-rooms and domes of equatorials, and for turning the domes themselves, are not estimated for.

Estimated weight of the dome of 26-inch equatorial, 55,630 pounds.

Estimated weight of the dome of 9.6-inch equatorial, 11,400 pounds.

It is assumed that the boiler for heating purposes will be placed in a house 100 feet distant from the Observatory buildings, but if it be placed in the building as shown on the plan, \$2,000 must be deducted from the estimate.

Estimate of the cost of a new building for the United States Naval Observatory.

Excavation, 11,018 cubic yards, at \$1	\$11,018 00
Rubble-stone masonry, 78,189 cubic feet, at 20 cents	15,637 80
Cut-stone masonry, 1,140 cubic feet, at 80 cents	912 00
Front brick, 18,720 cubic feet, at 90 cent	16,848 00
Common brick, 99,896 cubic feet, at \$12 per thousand	25,173 79
Dark Croton brick, 10,499 cubic feet, at \$17 per thousand	3,748 14
Concrete flooring, basement and area, 24,670 square feet, at 18 cents	4,440 60
Concrete tiling, for halls, 4,330 square feet, at 25 cents	1,082 75
Concrete over floor-arches, 7,937 cubic feet, at 30 cents	2,381 10
Plastering, 5,305 square yards, at 30 cents	1,591 50
Georgia pine flooring, for rooms, 16,915 square feet, at 6 cents	1,014 90
Wrought-iron floor-beams, ties, wall-plates, railings about area and stoops, and wrought iron, cast iron, galvanized sheet-iron, and tin used in the construction of rooms for the equatorials and transits, and interior of library and roofs, 886,682 pounds, at 5 cents	44,334 10
Cast-iron stairways, 43,810 pounds, at 7 cents	3,066 70
Piazza, 426 linear feet, at \$8	3,408 00
1 turret light and ventilator, for library, at \$800	800 00
1 skylight, hall to library, at \$300	300 00
5 windows, sashes and frames iron, at \$150	750 00

134 windows, sashes and frames iron, at \$50	\$6,700 00
2 windows, sashes and frames iron, at \$40	80 00
85 windows, sashes and frames iron, at \$35	2,975 00
1 double door, iron paneled, at \$150	150 00
2 double doors, iron paneled, at \$120	240 00
4 single doors, iron paneled, at \$60	240 00
1 single door, iron paneled, at \$50	50 00
82 single doors, iron paneled, at \$40	3,280 00
Steam-heating, automatic low pressure, \$3,575	3,575 00
Gas-fitting	1,150 00
Plumbing	1,000 00
Painting	2,500 00
Window-glass and glazing	1,917 00
Gas-fixtures	1,000 00
Total	161,464 38

H.

UNITED STATES NAVAL OBSERVATORY,
Washington, October 11, 1878.

SIR: In response to the request contained in the letter of the commission, dated the 4th ultimo, I have the honor to say, that I deem the buildings enumerated below, with estimated cost necessary for their erection, as proper and useful adjuncts to a naval observatory situated in the vicinity of Washington.

1 One house for Superintendent	\$13,000
6 Six houses for professors, at \$7,000	42,000
3 Three houses for assistant astronomers, at \$4,500	13,500
1 One house for secretary	4,000
1 One house for superintendent of grounds	2,500
1 One house for instrument-maker	2,500
4 Four houses for watchmen, at \$2,000	8,000
17	85,500

From which it will be seen that seventeen houses will be required, at an aggregate cost of \$85,500.

Very respectfully, your obedient servant,

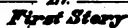
JOHN RODGERS,
Rear-Admiral, Superintendent.

Rear-Admiral DANIEL AMMEN, U. S. N.,
*Chairman of Commission relating to cost
of removal of the Naval Observatory.*



B

WEAVER



REPORT

OF THE

POSTMASTER-GENERAL

OF THE

UNITED STATES;

BEING PART OF

THE MESSAGE AND DOCUMENTS

COMMUNICATED TO THE

TWO HOUSES OF CONGRESS

AT THE

BEGINNING OF THE THIRD SESSION OF THE FORTY-FIFTH CONGRESS.



WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1878.

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REPORT OF THE POSTMASTER-GENERAL.

FINANCES.

WASHINGTON, D. C., *November 9, 1878.*

SIR: The total expenditures of this department during the fiscal year ended June 30, 1878, were \$34,165,084 49

The revenues were as follows:

Ordinary receipts	\$28,762,945 16	
Receipts from money-order business..	209,647 89	
Receipts for official stamps and stamped envelopes.....	304,923 90	
		29,277,516 95

Excess of expenditures over receipts	4,887,567 54	
--	--------------	--

Included in the above statement of expenditures is the sum of \$290,436.90, paid on liabilities incurred in previous fiscal years, and not properly chargeable to the expenditures of the last fiscal year. Deducting this sum from the aggregate amount leaves \$33,874,647.59 as the actual expenditures on account of service for the year.

The amount appropriated for service of the fiscal year 1877-'78, including Treasury grants and appropriations out of the Treasury for special purposes, was \$34,622,577 54

Amount expended for 1877-'78..... \$33,874,647 59

Less amounts expended in excess

of appropriations:

Compensation to postmasters	\$241,921 37	
Mail transportation, railroad.....	44,728 22	
		286,649 59
		33,587,998 00

Leaves an unexpended balance of appropriations for the year of..... 1,034,579 54

This balance will be largely reduced when the unadjusted liabilities for the year have been reported and paid.

Table No. 2 (page 269), accompanying the report of the Third Assistant Postmaster-General, shows the condition of the several accounts on the 30th of September, 1878.

The expenditures and receipts of the department, therefore, on account of and appertaining to the business of the last fiscal year (excluding expenditures and receipts on account of previous years) are as follows, viz :

Expenditures	\$33,874,647 59
Receipts, ordinary, from money-order business and from official stamps.....	29,277,516 95

Leaving an excess of expenditures over receipts chargeable against the appropriations from the Treasury, hereinafter enumerated, of..	4,597,130 64
---	--------------

The expenditures during the fiscal year were \$678,762.05 more than those of the preceding year.

The total receipts for the year were \$1,745,931.69 (or 5.9 + per cent.) more than those of the preceding year, and \$1,367,648.05 (or 4.4 + per cent.) less than the estimates therefor.

The decrease of receipts from the estimates is owing partly to the fact that the latter included \$750,000 to be appropriated out of the general Treasury for official postage-stamps for the use of the Post-Office Department; but Congress having failed to make the appropriation, the amount of such stamps used by the department, consequently, did not become available as revenue.

Excluding official postage-stamps and money-order receipts from both fiscal years, there is an increase of ordinary receipts over past fiscal year of \$1,774,500.22, or about 6.1 per cent.

The expenditures and receipts by fiscal quarters, and the increase or decrease therein, as compared with the corresponding quarters of 1875-'76 and 1876-'77, are shown by table No. 3 (page 270), which accompanies the report of the Third Assistant Postmaster-General.

AMOUNT DRAWN FROM TREASURY ON APPROPRIATIONS.

The following amounts were drawn from the Treasury during the fiscal year on appropriations :

To supply deficiencies in the revenues for the year ended June 30, 1878, act of March 3, 1877	\$2,939,725 00
For same, act of June 14, 1878	550,000 00
For same, act of June 20, 1878	250,000 00
To meet deficiency in compensation to postmasters for the year ended June 30, 1877, act of December 15, 1877	284,283 36
To meet deficiency in compensation to postmasters for the year ended June 30, 1878, act of June 14, 1878	400,000 00
For same, act of June 20, 1878	75,000 00
For payment of railway post-office clerks, route-agents, &c., being a deficiency for 1878, act of December 15, 1877	10,000 00
For same, act of April 30, 1878	7,000 00
For inland mail transportation, being a deficiency for 1878, act of December 15, 1877	500,000 00
To meet deficiencies in the revenues for the fiscal year ended June 30, 1877, act of July 12, 1876	250,000 00
For expenses of delegates to International Postal Congress, act of December 15, 1877	4,000 00

To pay New Brunswick and Canada Railroad Company, act of April 30, 1878.....	\$11,935 73
To pay T. W. Collier, postmaster at Coshocton, Ohio, act of April 29, 1878	938 72
To pay E. B. Head, postmaster at Harrodsburgh, Ky., act of June 19, 1878	127 00
To pay Texas and New Orleans Railroad Company, act of June 14, 1878..	577 16
To pay J. C. Clendennin for carrying mails in North Carolina in 1867, act of June 14, 1878.....	101 00
To pay G. H. Giddings, of Texas, for mail service, act of June 20, 1878..	2,967 43
To pay Quartermaster's Department for mail service performed by the Memphis and Little Rock Railroad Company prior to July 1, 1872, act of June 20, 1878.....	16,897 98
To pay T. A. Kendig for carrying mails in Louisiana, from November 1, 1866, to June 30, 1867, act of June 20, 1878	4,099 44
	<hr/>
	5,307,652 82

ESTIMATES FOR 1880.

The estimated expenditures for the fiscal year ending June 30, 1880, are..	\$36,571,900 00
The ordinary revenues are estimated at	\$30,150,000 00
Estimated revenue from money-order business	210,000 00
Estimated revenue from official postages	304,023 90

Total estimated revenue for the fiscal year ending June 30, 1880.. 30,664,023 90

Estimated excess of expenditures to be appropriated out of the general Treasury as a deficiency	5,907,876 10
---	--------------

Congress having for the last two consecutive years failed to make appropriation out of the Treasury for official stamps for the use of this department, it has not been thought advisable to submit further estimates on account of this item. The estimated revenues from official postages has, accordingly, been confined to the amount of official postage-stamps required for the use of the other executive departments.

Table No. 1 (page 257), accompanying report of the Third Assistant Postmaster-General, furnishes the estimates in detail.

DEFICIENCY APPROPRIATIONS.

The following statement will show the condition of the appropriations from the general Treasury to supply deficiencies in the postal revenues, viz:

1. For the fiscal year ended June 30, 1876, the amount unexpended was \$1,852,705, which by operation of law was carried into the surplus fund of the Treasury on the 30th June, 1878, leaving no means available for the payment of unsettled liabilities incurred prior to July 1, 1876.

2. For the fiscal year ended June 30, 1877, the amount unexpended was \$417,498, of which \$250,000 has been drawn from the Treasury and placed to the credit of the Post-Office Department, leaving a balance of \$167,498 still remaining in the Treasury and available for the payment of indebtedness on account of said fiscal year.

3. For the fiscal year ended June 30, 1878, the amount appropriated from the Treasury to supply deficiencies in the revenues was \$3,739,725, of which \$176,238.82 remains unexpended and available for unadjusted liabilities for said fiscal year.

LIABILITIES.

The unpaid indebtedness of the department for the fiscal year ended June 30, 1878, is estimated at \$350,000; for the payment of which there is available, as above stated, the sum of \$176,238.82, leaving a balance of \$173,761.18 still to be supplied out of the general Treasury.

POSTAGE-STAMPS, STAMPED ENVELOPES, AND POSTAL CARDS ISSUED.

The number of ordinary postage-stamps issued during the past fiscal year was.....

742,461,940, valued at..	\$19,468,618 00
Newspaper and periodical stamps.....	1,609,578..... 1,093,845 30
Stamped envelopes, plain.....	88,514,600..... 2,418,102 91
Stamped envelopes, request.....	67,845,250..... 2,183,025 25
Newspaper wrappers.....	27,200,500..... 304,645 60
Postal cards.....	200,630,000..... 2,006,300 00
Official postage-stamps.....	15,551,660..... 618,094 60
Official stamped envelopes.....	16,783,125..... 474,553 10

Aggregating	1,160,596,653	28,567,184 76
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INCREASE IN ISSUES OF POSTAGE-STAMPS, ETC.

In all the above issues there has been an increase over those of the previous year, as is shown by the following table:

Description.	Fiscal year ended June 30, 1877.	Fiscal year ended June 30, 1878.	Increase.	
			Value.	Per cent.
Ordinary postage-stamps.....	\$18,181,876 00	\$19,468,618 00	\$1,286,742 00	7.07
Stamped envelopes, plain.....	2,281,574 11	2,418,102 91	136,528 80	5.98
Stamped envelopes, request.....	2,069,995 65	2,183,025 25	113,029 60	5.46
Newspaper wrappers.....	285,362 00	304,645 60	39,283 60	14.80
Newspaper and periodical stamps.....	1,000,605 10	1,093,845 30	93,240 20	9.31
Postal cards.....	1,700,155 00	2,006,300 00	306,145 00	18.00
Total increase, ordinary issues.....			1,975,169 20	7.74
Official stamps, stamped envelopes, and wrappers.....	1,028,468 61	1,092,647 70	66,179 09	6.44
Aggregate increase.....			2,041,348 29	7.69

In the transmission of these supplies, 10 packages only were lost.

POSTAGE ON NEWSPAPERS AND PERIODICALS.

Under the act of Congress of June 23, 1874, requiring prepayment of postage on second-class matter mailed by publishers or news-agents, the total amount of postage collected on such matter during the fiscal year

was \$1,025,180.98, or \$817,673.26 on 40,883,663 pounds at 2 cents per pound, and \$207,507.72 on 6,916,924 pounds at 3 cents per pound. The increase in the amount of postage collected over that of the preceding fiscal year was \$461.82.

DEAD LETTERS.

There has been no material change in the amount of dead matter received, or in the mode of its treatment in the Dead-Letter Office, since my last annual report.

The whole number of letters and parcels received during the year was 3,186,805, a daily average of 10,181, classified as follows: Ordinary mailed letters, 2,039,101; local or drop, 385,700; foreign, 209,432; mailed in the United States and returned unclaimed from foreign countries, 101,942; addressed to departed guests and returned from hotels, 41,053; held for postage, 304,689; misdirected, 66,007; without address, 7,587; containing unmailable matter, 2,066; registered, 5,660. Of these, 19,145 letters contained \$29,995.90 in money; 10,686 contained drafts, checks, money-orders, notes, due-bills, &c., to the value of \$1,405,301.12; 629 contained deeds, land warrants, mortgages, leases, pension certificates, railroad tickets, bank-books, wills, &c.; 24,356 contained photographs; 44,644 contained postage-stamps; and 21,816 contained receipts, legal papers, certificates, paid notes, and canceled obligations of all sorts; 33,325 contained jewelry, clothing, books, pictures, music, and merchandise of every conceivable variety.

The amount of money deposited in the Treasury during the year from letters for which no owners could be found was \$8,937.01. A portion of this sum, however, was realized by the conversion of money taken from letters in previous years not receivable on deposit in the United States Treasury.

REGISTERED LETTERS.

The total number of registered letters and packages mailed during the year was 4,898,804, of which 4,744,811 were sent to points within the United States and Territories, and 153,993 to foreign countries. The amount of fees collected (in addition to postage) was \$414,999.40, an increase over the preceding fiscal year of \$47,560.60, or nearly 13 per cent. The number of packages of United States bonds, currency, revenue-stamps, postage-stamps, stamped envelopes, and postal cards transmitted by registered mail for the Treasury and Post-Office Departments, without payment of registry fees, was 404,003, valued at \$157,457,794.08. The actual losses during the year were unusually small, averaging one out of every 9,140 letters or packages transmitted.

On the 1st October last the registry system was extended to mail matter of the third class, and it is already evident that the extension has not only supplied a great popular want, but that it will result beneficially to the postal revenues.

CONTRACTS.**STATISTICS OF TRANSPORTATION.**

There were in the service of the department on the 30th of June, 1878, 5,996 contractors for the transportation of the mails on public routes.

There were, at the close of the fiscal year, 1,667 special offices, each with a mail-carrier, whose pay from the department is not allowed to exceed the net postal yield of the office.

Of public mail-routes in operation there were 9,917 (of which 1,000 were railroad routes, being an increase of 42 routes of this class over the previous year), aggregating in length 301,966 miles; in annual transportation, 158,185,375 miles; in annual cost, \$16,034,021. Adding the compensation of railway post-office clerks, route-agents, mail-route messengers, local agents, and messengers, amounting to \$3,228,400, the aggregate annual cost will be \$19,262,421.

The service was divided as follows:

Railroad routes: Length, 77,120 miles; annual transportation, 92,120,395 miles; annual cost, \$9,566,595; about 10.38 cents per mile.

Steamboat routes: Length, 18,069 miles; annual transportation, 4,629,298 miles; annual cost, \$752,483; about 16.25 cents per mile.

Other routes on which the mails are required to be conveyed with celerity, certainty, and security: Length, 206,777 miles; annual transportation, 61,435,682 miles; annual cost, \$5,714,943; about 9.30 cents per mile.

There were, at the close of the fiscal year, 4,311 offices supplied by mail-messengers, at an annual cost of \$649,387.

There was an increase over the preceding year in length of routes of 9,146 miles; in annual transportation, 10,832,124 miles; and in annual cost, \$649,126. Adding the increase in cost for railway post-office clerks, route, local, and other agents, amounting to \$84,057, the total increase in cost was \$733,183.

READJUSTMENT OF PAYMENTS TO RAILWAY COMPANIES.

The readjustment of pay (Table F, pages 140-165) in the States of Kansas, Nebraska, Arkansas, Louisiana, Texas, Colorado, Nevada, California, and Oregon, and in the Territories of Utah, Dakota, and Washington, for the regular term of four years commencing July 1, 1878, and on certain routes in other States, shows, notwithstanding the abatement of 5 per centum required by act of June 17, 1878, an increase in cost of \$371,273.29.

INSUFFICIENT APPROPRIATIONS FOR RAILWAY MAIL SERVICE.

The cost of the railway service on the 30th June, 1878, was at the rate of \$9,566,595 per annum, or \$316,595 per annum in excess of the appropriation for that year. In this connection attention is particularly in-

vited to the explanation showing that, in the usual and regular course of business, it is impracticable, under existing law, to restrict the expenditure for transportation by railway.

The monthly report of the state of the service showed the cost of the railway service on the 30th September, 1878, to be at the rate of \$9,360,000 per annum.

To this must be added the cost of new service for three-fourths of the year, which will amount to not less than \$100,000, making the annual cost \$9,460,000, without any allowance for the usual expansion of the service.

An additional appropriation of not less than \$400,000 is therefore required to cover the cost of the service for the current year.

NO DEFICIENCY TO BE CREATED.

As the facts are definitely ascertained, there will be no deficiency created during the current fiscal year, as service may be discontinued from January 1, 1879, on a sufficient number of the least important roads, or the railway postal service may be reduced or discontinued to bring the cost within the \$9,100,000 appropriated, if such be the will of Congress.

COST OF RAILWAY SERVICE.

The cost of railway service on the 30th June, 1877, was \$9,053,936. The cost on the 30th June, 1878, was \$9,566,595, which is an increase for 1878 over 1877 of \$512,659, or 5.66 per cent. The cost of the service for the current fiscal year, as shown by facts and estimates, will not be less than \$9,500,000.

In estimating the cost for 1880, it is believed that a larger estimate should be made for the item of service on newly constructed roads than has been made for several years past, because of the rapid settlement of the undeveloped country west of the Mississippi River.

Accepting \$9,500,000, the estimated cost for 1879, as the basis, and fixing the rate of increase at about 8 per cent. (7.89), the cost for 1880 will be \$10,250,000.

DISSATISFACTION OF RAILWAY COMPANIES.

The reduction directed in the act of June 19, 1878, of 5 per centum in the compensation allowable to railway companies for weight of mails has been the occasion of much dissatisfaction and complaint. Most of the leading companies have entered formal protest against this reduction; and some have stated that they only continued to perform the service temporarily lest their refusal to do so might occasion serious inconvenience to the public.

TRANSFER OF MAILS FROM DEPOTS TO POST-OFFICES.

In the last annual report attention was called to the service rendered by railway companies in carrying the mails between stations and post-offices.

As the question of revising the rates of compensation for railway mail transportation is now before Congress, I deem it proper to again invite attention to the subject. The laws and regulations under which this service is now performed are too indefinite to be with propriety continued as a part of the proposed new law.

The delivery of mails from stations to post-offices should either be made an element of the basis of compensation, to be paid for according to the work done on each route, or the railway companies should be relieved from this duty. An unpaid service is always a source of dissatisfaction.

Attention is again called to the insufficiency of the compensation allowable under the law for service on many short routes.

THE PROPER BASIS OF COMPENSATION TO RAILROADS.

During the last session of Congress, bills were presented to amend the law regulating the compensation to railway companies for carrying the mails, so as to base the rates of pay upon the items of "space, speed, and frequency." It is suggested that the space to be paid for on each route should be limited to a specified amount for a certain weight of mails. Otherwise, the compensation of all railroads, and consequently the expenditure of more than \$9,000,000 annually, would be left to the discretion of the Postmaster-General; and it is clear that this should not be done.

THE RAILWAY MAIL COMMISSION.

The reports to the Forty-fifth Congress of the special commission on railway mail transportation contained some statements, which, without explanation, might imply that the laws regulating the rates of pay to railway companies for carrying the mails had not been faithfully executed. It is stated on page 8 of the minority report, and page 4 of the majority report, that one road carrying an average weight of mails of "69,554 pounds per day, making 98 trips per week, was paid \$839.30 per mile per annum; while another road, making 9 trips per week, carried 15,596 pounds, and was paid \$885.62 per mile." The allowance on the route carrying 15,596 pounds per day was \$349.42 per mile, and not \$885.62 per mile as stated in the reports.

NO DISCRIMINATION AGAINST SOUTHERN RAILWAYS.

On page 32 of the minority report, in connection with the aggregate payments for mail service, it is said that, "the South had more than her proportion in 1860, and less in 1876." From this it might be inferred that there had been unjust discrimination against the southern roads in the adjustment of pay for carrying the mails, but such is not the case. The rates of pay are the same on all roads on which the amount and character of the service are similar. It is true that greater rates of pay are allowed elsewhere than in the South, because the service is greater. On one route from New York City the average daily weight

of mails is 36 tons, while no road south of Maryland carries more than 6 tons of mail a day, and the same disproportion exists between nearly all northern and southern railroads.

COST OF TRANSPORTATION NOW AND IN 1854.

A statement will be found on page 64 which shows that notwithstanding the great increase in the weight of mails and the additional facilities furnished for their care and distribution in transit, the rate per mile of annual transportation in 1877 was but *nine* mills greater than in 1854.

UNIFORMS FOR POSTAL EMPLOYÉS.

The experiment of uniforming the railway postal employés has resulted in greatly improving the efficiency of that branch of the service. It is suggested that the Postmaster-General be authorized by law to designate a uniform to be worn by any or all employés of the postal service, and that a penalty be fixed for the wearing of the same by unauthorized persons.

CLASSIFICATION OF EMPLOYÉS IN THE RAILWAY MAIL-SERVICE.

At present there are four designations by which the employés of the railway mail-service are known, viz, railway post-office clerks, route-agents, mail-route messengers, and local agents, and a separate appropriation is made for each class. As their duties are similar, all of these employés should be classed as railway postal clerks, with graduated salaries not to exceed the following rates per annum: First class, \$800; second class, \$900; third class, \$1,000; fourth class, \$1,200; and the fifth class \$1,400. If this suggestion be adopted one appropriation can be made to cover the cost of the entire service.

TEMPORARY CONTRACTS.

The present law limiting the period for which temporary contracts may be made without advertisement to six months, has occasioned much embarrassment to the department, and rendered it necessary to issue two miscellaneous advertisements each year instead of one as formerly. The expense of establishing service is thereby considerably increased, and much additional labor is imposed upon the department, with no advantage to the government or the public. If temporary contracts could be made for one year, as formerly, the service would be benefited.

FINES AND DEDUCTIONS.

The amount of fines imposed upon contractors, and deductions made from their pay for failures and other delinquencies for the fiscal year ending June 30, 1878, was \$99,077.08, and the amount remitted for the same period was \$16,502.78, leaving the net amount of fines and deductions \$82,574.30, against a net deduction of \$64,282.14 for 1877.

MAIL-BAGS, CATCHERS, LOCKS, AND KEYS.

A tabular statement (G, page 172) appended hereto exhibits in detail the number, description, and cost of all mail-bags and mail-catchers, and of all mail locks and keys purchased under contracts during the year ended June 30th last.

The total number of mail-bags procured and put into service was 79,898, of which 72,100 were for the transmission of printed and third-class matter, and 7,798 were chiefly for letters or first-class matter.

The number of new mail-catchers procured was 400.

The entire quantity of mail-bags repaired was 344,619, the cost of which was \$38,468.22. Under a long-continued system of repairing mail-bags, abolished by my predecessor, who established the present system, the cost of the same repairs would have amounted to \$90,230.11.

The total expenditure for mail-bags, mail-catchers, repairs, &c., was \$140,275.54, or \$25,365.75 less than that of the last preceding year.

The total expense for mail locks and keys was \$5,890; \$7,585 less than the expense of the previous year.

OPERATIONS OF SPECIAL AGENTS.

The special agents of this department have rendered efficient service in investigating irregularities, securing safety to the mails, and increasing the efficiency of all branches of the postal service.

MAIL DEPREDACTIONS.

The action of Congress in authorizing, in the appropriation for the service of the Post-Office Department for the fiscal year 1879, the expenditure of \$20,000 in rewards for the apprehension of mail robbers, has been fully justified by the results. Through the inducements thus held out the energetic action of the special agents of the department has been supplemented by the earnest efforts of others who, in hope of securing the rewards offered, have rendered most efficient aid in suppressing the unlawful acts so frequently complained of in the Western Territories.

Inasmuch as the appropriation for this purpose is limited to the fiscal year ending June 30, 1879, I have directed the offers of reward to be made in such form as not to involve the department in any liabilities after that date.

The amount provided for rewards was made a part of the appropriation for mail depredations and special agents, and consequently diminishes to the extent of the sum used, the amount available for the salaries and expenses of the special agents. Furthermore, as the amount to be expended for rewards cannot be accurately estimated, the department is obliged to limit the number of agents employed, in the efforts to maintain the reserve for rewards which the exigencies of the service may render necessary.

I would recommend, therefore, that the appropriation be renewed for the ensuing year, and that either it be not included in the appropriation for mail depredations and special agents, or that the latter appropriation be increased by a corresponding amount.

ARRESTS AND CONVICTIONS.

The total number of persons arrested during the year was 554, of whom 442 were prosecuted in United States courts and 132, being cases of highway mail robberies, burglaries of post-offices, &c., in the State courts. Of the former, 205 were convicted, 13 acquitted, 50 otherwise disposed of, and 154 are awaiting trial. Of the cases of arrest, subject to the jurisdiction of the Federal courts, 166 were salaried employes of the department and classed as follows:

Postmasters.....	62
Assistant postmasters.....	23
Clerks in post-offices.....	19
Postal clerks and route-agents.....	10
Mail-carriers.....	25
Letter-carriers.....	13
Other employes.....	14

CASES ACTED UPON.

The number of cases made up for investigation by special agents during the year was 14,511, of which the loss of registered letters was 2,582, of unregistered letters, 9,574; and miscellaneous cases, being the location of post-offices, effecting leases, investigation of postmasters' bonds, &c., 2,355; of 1,957 registered letters reported as lost in transit 1,117 have been recovered without loss; of 840 registered letters reported as actually lost, contents of which are estimated at \$23,631.97, 304, valued at \$6,248.12, were made good, and amounts paid to the rightful claimants. Registered letters numbering 611, and valued at \$17,510.57, are reported as having been rifled of their contents in transit, of which 96, aggregating in value \$6,311.13, have been recovered and amount of contents restored to the owners. Only 627 cases of registered letters are outstanding and under investigation. Of 9,574 complaints of the loss of ordinary or unregistered letters, estimated value of which in bonds, drafts, and money is \$412,925.40, 6,383 have been reported on satisfactorily, and 3,191 are still under investigation. Of the 2,355 classed as miscellaneous, 1,993 have been investigated and 362 are yet in the hands of special agents.

A considerable portion of the time of the special agents has been devoted to examinations of the solvency of the sureties of postmasters, and, so far, this service promises to be of incalculable benefit to the government in guarding it against loss from defaulting postmasters.

RAILWAY POST-OFFICE LINES.

A tabular statement, hereto appended, shows that the number of railway post-office lines in operation on the 30th of June, 1878, was 59, ex-

tending over 16,980 miles of railroad routes, a decrease of 5 lines and 781 miles as compared with the preceding year.

The number of clerks in the service at the end of the fiscal year ending June 30, 1877, was 1,051, whose annual salaries aggregated \$1,222,690.

The number of clerks in the service at the end of the fiscal year ending June 30, 1878, was 1,081, whose annual salaries aggregated \$1,260,590, showing an increase of 30 clerks and of \$37,900 in salaries.

The actual expenditures for railway post-office clerks for 1877 were \$1,223,569.41; the actual expenses for 1878 were \$1,236,524.39; an increase of \$12,954.98.

The annual mileage of service performed by railway post-offices was 17,933,910 miles, an increase of 1,008,860 miles.

POST-ROUTE MAPS.

The topographer's office has been occupied in noting upon the post-route maps for the use of the department the daily changes of routes and post-offices, and in the preparation and publication of new maps and revised editions of those previously issued. The increased appropriation granted by Congress has permitted the publication of revised editions of 17 maps (43 sheets), and compilation and publication of new maps of Kentucky, Tennessee, Texas, the Western Territories, and Oregon in 11 sheets. Maps of Georgia, Arkansas, the Indian Territory, and part of Minnesota will be completed during the present fiscal year, and other needed revisions of maps will be taken up as the appropriations may admit.

In addition to the requirements made on this office by the Post-Office Department, it is called upon to answer daily inquiries of all the other departments for information upon which their mileage and telegraphic accounts are adjusted.

APPOINTMENTS.

The report of the appointment office shows the following:

Number of post-offices established during the year	2, 784
Number discontinued	871
Increase	1, 913
Number in operation June 30, 1877	37, 345
Number in operation June 30, 1878	39, 258
Number filled by appointments of the President	1, 570
Number filled by appointments of the Postmaster-General	37, 628

Appointments were made during the year—

On resignations and commissions expired	5, 117
On removals	748
On changes of names and sites	184
On deaths of postmasters	338
On establishment of new offices	2, 784

Total appointments	9, 171
Number of cases acted on during the year	10, 276

SPECIAL AGENTS AND RAILWAY MAIL SERVICE.

The number and aggregate compensation of special agents, railway post-office clerks, route agents, mail-route messengers, and local agents in service during the year ended June 30, 1878, were—

*46 special agents	\$134,999 85
1,081 railway post-office clerks	1,260,590 00
1,143 route agents	1,045,980 00
241 mail-route messengers	154,593 00
143 local agents	117,850 00
	<hr/>
	2,714,012 85

EMPLOYÉES IN THE POST-OFFICE DEPARTMENT.

The following table shows the number of employées in the Post-Office Department, also the number of postmasters, contractors, clerks in post offices, route-agents, railway post-office clerks, and other officers in service June 30, 1877, and June 30, 1878:

DEPARTMENTAL OFFICERS AND EMPLOYÉS.	1877.	1878.
Postmaster-General	1	1
Assistant Postmasters-General	3	3
Superintendent of Money-Order System	1	1
Superintendent of Foreign Mails	1	1
Chief Clerk to the Postmaster-General	1	1
Chief of Division of Depredations	1	1
Chief of Division of Dead Letters	1	1
Chief of Division of Postage Stamps, Stamped Envelopes, &c.	1	1
Chief of Division of Free Delivery Service	1	1
Topographer for department	1	1
Disbursing officer and superintendent of building	1	1
Stenographer	1	1
Chief clerks of bureaus	5	5
Clerks, messengers, watchmen, &c.	354	340
	<hr/>	<hr/>
	373	359

POSTMASTERS AND OTHER OFFICERS AND AGENTS.	1877.	1878.
Postmasters	37,345	39,258
Contractors	6,018	5,996
Clerks in post-offices	4,465	4,651
Letter-carriers	2,265	2,275
Route-agents	1,065	1,143
Railway post-office clerks	1,051	1,081
Mail-route messengers	248	241
Local agents	136	143
Special agents	61	59
	<hr/>	<hr/>
Total in service	52,654	54,847

THE FREE-DELIVERY SYSTEM.

Owing to the reduction in the appropriation, this system was not extended to any additional cities, except to Georgetown, D. C., which office was made a branch of the Washington office January 1, 1878.

It was also found impracticable, within the appropriation, to meet the demands for increased service from the cities where the system was

* Other special agents charged to separate appropriations.

already in operation; hence, in some instances, the service, though regular and reliable, was slow and unsatisfactory, especially as it affected local correspondence.

The results, however, show a large increase in the number of pieces handled and in the amount of postage on local matter, and, at the same time, a large decrease in the cost of service. These results were due to increase in the work and a reduction of 5 per centum per annum in the salaries of carriers.

The increase in postage on local matter over last year was 8.7+ per cent., and the decrease in expenses 3.6+ per cent.

The postage on local matter exceeded that of last year by \$197,653.68, and the entire expense of the service by \$628,084.53.

The average cost per piece of handling the matter was 2.50 mills; a reduction of .33 of a mill as compared with last year.

STATISTICS OF THE FREE-DELIVERY OFFICES.

The aggregate results for the fiscal year were as follows:

AGGREGATE RESULT OF FREE-DELIVERY SERVICE FOR THE FISCAL YEAR ENDING JUNE 30, 1878.

		Increase over last year.	Decrease over last year.
Number of offices	87		
Number of letter-carriers	2,275	10	
Mail letters delivered	203,462,528	6,086,681	
Mail postal cards delivered	33,877,156	4,911,210	
Local letters delivered	57,481,127	463,684	
Local postal cards delivered	29,194,610	5,539,882	
Registered letters delivered	1,292,445	142,763	
Newspapers delivered	91,928,010	4,079,203	
Letters collected	216,048,841	16,482,408	
Postal-cards collected	46,932,215	6,694,618	
Newspapers collected	35,565,219	4,818,224	
Whole number of pieces handled	715,782,150	49,218,672	
Pieces handled per carrier	314,629	20,385	
Total cost of service, including pay of special agents	\$1,824,166 96		\$69,452 89 or 3.6 + p. ct.
Average cost per piece, in mills	2.50		.33
Average cost per carrier*	\$799 07		\$35 50
Amount of postage on local matter	\$2,452,251 51	\$197,653 68 or 8.7 + p. ct.	
Excess of postage on local matter over the total cost of service	\$628,084 55		

* Based on the aggregate (\$1,817,896.96) paid carriers, including incidental expenses at the several offices, less \$6,270 paid special agents.

NECESSITIES OF THE SERVICE.

The urgent need of this service is greater frequency in deliveries and collections in several of the larger cities; and, in view of the large excess of postage on local matter over the cost of the service—due mainly to the carriers' delivery—a wise policy would seem to justify more liberal appropriations for the purpose suggested above, and also for the extension of the service to other cities having the population (30,000) entitling them to it under the law.

In regard to the pay of carriers, I desire merely to renew my recommendation of last year.

A tabular statement, exhibiting in detail the operations of the free-delivery service for the past fiscal year, will be found on page 40.

POSTAL MONEY-ORDER SYSTEM.

NUMBER OF DOMESTIC MONEY-ORDER OFFICES.

At the commencement of the last fiscal year the total number of post-offices authorized to issue and pay domestic money-orders was 3,686. During the year 460 new offices were added to the list and 3 were discontinued. On the 30th day of June, 1878, the total number of such offices in operation was 4,143.

ISSUES AND PAYMENTS OF DOMESTIC MONEY-ORDERS.

During the year 5,613,117 domestic money-orders, amounting to \$81,442,364.87, were issued, and 5,579,341, amounting to \$80,771,455.20, were paid. The amount of such orders repaid during the same period was \$508,455.60, which, added to the amount of the orders paid, makes the payments amount to \$81,279,910.80. The excess of the issues over the payments was \$162,454.07.

The fees received by postmasters for the issue of domestic money-orders amounted to \$715,261.20. The average amount of such orders issued was \$14.51, being 27 cents less than the average of the preceding year; and the average fee received for each order was 12.74 cents, being 0.08 greater than the average of the preceding year.

INCREASE IN THE MONEY-ORDER BUSINESS.

By the foregoing statement, when compared with that relating to similar transactions of the previous year, an increase of \$8,621,855.17, or 11.84 per cent., is shown in the amount of the orders issued; of \$8,323,298.67, or 11.49 per cent., in the amount of the orders paid; and of \$91,512.25, or 14.67 per cent., in the amount of fees received.

INDICATIONS OF REVIVING COMMERCE.

This increase is believed to be mainly attributable to an improvement in the commercial condition of the country. The new offices placed upon the list, being of the lowest grade, have added very little to the aggregate business of the system, while in the great commercial centers the increase has been quite distinguishable. For instance, in New York the increase in the aggregate amount of the domestic money orders issued and paid during the last over the preceding year was 9 per cent.; in Chicago, Ill., 10 per cent.; in Boston, Mass., 4 per cent.; in Saint Louis, Mo., 15 per cent.; and in Cincinnati, Ohio, 11 per cent. The proportionate increase in the number of such orders was much greater, but their average amount, as heretofore shown, was less than during the preceding year.

REVENUES AND EXPENSES.

The Auditor has reported the following statement of revenue which accrued from domestic money-order transactions during the fiscal year ended June 30, 1878:

Fees received on domestic money orders issued	\$715,261 20
Premiums, &c	1,377 78
Total	716,638 98
Commissions and clerk-hire	\$474,735 51
Incidental expenses	35,380 30
Lost remittances	2,119 80
Bad debts	1,451 00
Net revenue	202,952 37
	<hr/> 716,638 98

The revenue, \$202,952.37, from the domestic business is \$103,021.18 greater than that of the previous year, being an increase of 113.1 per cent., or, excluding the item of \$53,632.87 mentioned in the last annual report as "a loss occasioned by a compromise, made December 29, 1876, with the sureties of James Kelly and Patrick Jones, late postmasters at New York, N. Y.," an increase of 32.16 per cent. over the revenue properly belonging to the fiscal year ended June 30, 1877.

Allowances for clerk-hire amounting to \$175,392 were made during the last year at several of the larger post-offices out of the surplus commissions accruing from their money-order business over and above such amount of commissions as, when added to the postmaster's salary, would make his entire compensation \$4,000 per annum, the limit fixed by law.

The allowances are made at such offices in lieu of commissions when the exigencies of the service require additional clerical labor, and are included in the foregoing statement of the Auditor, in the item of "Commissions and clerk-hire."

REMITTANCES OF SURPLUS FUNDS.

Postmasters at offices at which the amount received for the sale of orders exceeds the amount of the orders paid are instructed to make daily remittances of the accruing surplus to some designated "money-order office of the first-class," certain of the larger post-offices being thus denominated by reason of their having been authorized to receive deposits of surplus money-order funds.

It is required that these remittances be made in registered letters by mail, when it is impossible for them to procure drafts of National Banks or of United States disbursing officers.

At "money-order offices of the first-class" postmasters received on deposit during the year \$59,398,358.22 of such remittances, exclusive of the amount of postmasters' drafts paid by the postmaster at New York, N. Y., and of certain sums furnished to postmasters in the Pacific States by the postmasters at San Francisco, Cal., and Portland, Oreg.

TRANSFER OF FUNDS.

In case of money-order offices at which the amount required to pay orders when presented is either habitually or occasionally in excess of the amount received from the sale of orders and from depositing post-offices, postmasters are authorized to make transfers of funds from their postage account to their money-order account to meet the deficiency arising from such excess in the payments.

In cases where the amount of postage funds was insufficient or not available for this purpose, postmasters at offices east of the Rocky Mountains were in each case allowed a definite amount of credit with the postmaster at New York, N. Y., and a limited supply of blank drafts were furnished, to be drawn against such credits, from time to time, as the exigencies of their business might require. Drafts of this description amounting to \$7,347,030.80 have been paid by the postmaster at New York, N. Y., during the last fiscal year.

To meet similar requirements in the States and Territories of the Pacific slope, where drafts upon New York are not at all times available, postmasters were furnished with funds, amounting to \$116,155, by the postmaster at San Francisco, Cal., and \$27,259 by the postmaster at Portland, Oreg.

At certain post-offices, where large sums are required to meet payments of mail-contractors and other creditors of the department, the transfer of funds from the money-order to the postage account is, when necessary, specially authorized by the department.

The transfers from the money-order to the postage account during the last year amounted to \$404,669.88, and from the postage to the money-order account to \$605,832.33, leaving a balance of \$201,162.45 to the credit of the postage account.

LOST REMITTANCES.

In the last annual report it was stated that twenty cases, amounting to \$4,894, of remittances alleged to have been lost in the mails remained unsettled June 30, 1877. During the succeeding year twenty-six additional cases, amounting to \$5,899, were reported, making an aggregate of forty-six cases, amounting to \$10,793.

In one case the amount, \$534, was afterward received at the depository; in fourteen cases the amount, \$2,112, was allowed to the postmasters by whom the remittances were made; in one case \$22, being 16.5 per cent. of the amount lost; in another \$390, being 60.9 per cent.; and in another \$261, being 60.1 per cent., were so allowed, making a total of \$2,785 allowed.

In eight cases the amount, \$2,067, was recovered by special agents of this department; in one case, \$111, being 83.5 per cent. of the amount lost; in another, \$250, being 39.1 per cent., and in another, \$173, being 39.9 per cent., were so recovered; a total of \$2,601 recovered.

In eleven cases the amount, \$3,553, was charged to the remitting postmasters, it having been ascertained that the losses occurred through their negligence; and nine cases, amounting to \$1,320, remain unsettled at the close of the year.

A discrepancy of \$665.20 appears between the amount, \$2,785, reported above as allowed to postmasters on account of remittances lost in the mails, and the amount, \$2,119.80, reported by the Auditor as so allowed. This discrepancy is caused as follows, viz: A credit of \$51.80 was authorized by this department during the year ended June 30, 1877, which was not settled by the Auditor until after the commencement of the succeeding year, and another credit of \$775 was so allowed during the last year, which has not been as yet reported by the Auditor. The difference between these allowances, \$723.20, when added to the amount reported by the Auditor, makes \$2,843. From this sum deduct \$58, afterward recovered and disallowed, but not yet settled by the Auditor, and the sum of \$2,785 appears as above reported.

MONEY-ORDERS ERRONEOUSLY PAID.

In the last annual report it is stated that claims for reimbursement on account of the alleged erroneous payment of fifty-six money-orders, amounting to \$1,768.27, remained unsettled at the close of the year. One of these cases involved the issue of another order, for which reason the number therein reported as unsettled should read fifty-seven instead of fifty-six. Since the publication of that report additional cases of twenty-one orders, amounting to \$555.13, alleged to have been erroneously paid prior to July 1, 1877, have been brought to the notice of the department.

Twenty-eight orders, amounting to \$566.33, were alleged to have been erroneously paid during the year, being at the rate of one erroneous payment in 199,262 orders paid, making a total of 106 alleged erroneous payments, amounting to \$2,889.73, under investigation during the year.

By means of forging the signatures of the payees, or of their indorsees or agents, or by other unlawful or irregular means, it was claimed that certain persons, fraudulently representing themselves to be such payees, indorsees, or agents, were enabled to obtain payment of the orders in question. Four of these orders, amounting to \$72, were afterward ascertained to have been paid to the proper person; in case of twenty-five orders the whole amount, \$713.77, was recovered by special agents of this department, and in the case of three others, \$69.43, being 57.1 per cent. of the amount, was so recovered, making \$783.20 recovered. In case of nine others, amounting to \$348.50, the loss was assumed by the department; the amount of one order, \$50, was charged to the issuing postmaster; the amount of twenty-six orders, \$821.68, was charged to the paying postmaster, or through him to the clerk in his office through whose negligence the error occurred; in case of three orders, the remitter was required to lose \$11.60, being 42.9 per cent. of

the amount; in case of four orders the remitter was required to sustain the loss of \$75, being one-half the amount, making a total of \$86.60 charged to remitters. In case of five orders the payee was required to sustain the loss, \$140.60, and the cases of thirty-one orders, amounting to \$587.15, remained unsettled on the 30th of June, 1878.

DUPLICATE MONEY-ORDERS.

The total number of duplicate money-orders issued was 16,576. Of this number 14,061 were issued in lieu of orders lost in the mails, or which, by reason of imperfect address, or change of residence, or from some unknown cause, had failed to reach the payee; 628 were issued in lieu of orders alleged to have been lost through the negligence or misfortune of the payees or indorsees; 775 were issued to remitters in lieu of orders payment of which had been prohibited in pursuance of the provisions of section 3929 of the Revised Statutes of the United States, because drawn in favor of the proprietors or agents of fraudulent lotteries, gift enterprises, or other "schemes or devices for obtaining money through the mails by means of false or fraudulent pretenses, representations, or promises"; 95 in lieu of orders which had become invalid by reason of having received more than one indorsement; 280 in lieu of orders invalidated because not presented for payment within one year after the date of their issue; 10 in lieu of orders supposed to have been burned in the mails, and 43 in lieu of orders mutilated or rendered illegible while in the hands of remitters, payees, or indorsees.

INTERNATIONAL MONEY-ORDER BUSINESS—REVENUES AND EXPENSES.

The Auditor has not reached a final adjustment of the accounts of the last quarter of the fiscal year, required to be made with the proper accounting officers of the several foreign countries with which money-order conventions are in force; for which reason he is unable, at this time, to furnish an exact statement of the revenue for the year derived from the exchange of money-orders with those countries. It is estimated at \$9,000.

The revenue and expenses for the year ended June 30, 1877, as stated by the Auditor in the case of each of the foreign countries named, are given below under the appropriate heading.

EXCHANGE OF MONEY-ORDERS WITH SWITZERLAND.

At the commencement of the last fiscal year 176 money-order offices were in operation authorized to issue orders payable in Switzerland, and to pay orders drawn in that country. Four offices were added to the list during the year, making a total of 180 in operation at its close.

The number of such orders issued in the United States during the year was 4,593, amounting to \$92,280.74, of which amount \$320.56 was after-

ward repaid to the remitters; and the number paid in the United States was 2,053, amounting to \$53,795.72.

The fees received for Swiss orders issued amounted to \$2,296.25.

A comparison of this business with that of the previous year exhibits an increase of \$12,655.41, or 15.89 per cent., in the amount of orders issued; of \$13,370.77, or 33.08 per cent., in the amount of orders paid; and of \$339, or 14.77 per cent., in the amount of fees received. The Auditor's statement of the Swiss revenue and expense account for the year ended June 30, 1877, is as follows:

Fees received	\$2,296 25
Paid for commissions and clerk-hire.....	\$565 19
Paid for incidental expenses.....	48 50
Excess of commissions paid Switzerland.....	370 75
Cost of exchange.....	14 88
Net revenue.....	1,296 33
	<hr/> 2,296 25

EXCHANGE OF MONEY-ORDERS WITH GREAT BRITAIN.

At the commencement of the last fiscal year 1,003 money-order offices were in operation, authorized to issue orders payable in the United Kingdom of Great Britain and Ireland, and to pay orders drawn in that country. Eleven offices were added to the list during the year, making a total of 1,014 in operation at its close.

The number of such orders issued in the United States during the year was 55,346, amounting to \$807,183.32, of which amount \$2,960.47 was afterward repaid to the remitters; and the number paid was 21,167, amounting to \$363,203.18.

The fees received for orders issued amounted to \$25,075.75.

A comparison of this business with that of the previous year shows an increase of \$1,844.69, or 0.23 per cent. in the amount of the orders issued; a decrease of \$29,563.01, or 7.53 per cent., in the amount of the orders paid; and a decrease of \$581, or 2.26 per cent., in the amount of fees received.

The Auditor's statement of the revenue and expense account with Great Britain for the year ended June 30, 1877, is as follows:

Amount received for fees on orders issued.....	\$25,656 75
Net loss.....	2,084 18
Total.....	<hr/> 27,740 93
Amount paid for commissions and clerk-hire.....	\$22,527 72
Amount paid for incidental expenses	75 86
Excess of commissions paid.....	4,086 10
Cost of exchange.....	1,051 25
	<hr/> 27,740 93

EXCHANGE OF MONEY-ORDERS WITH GERMANY.

At the commencement of the last fiscal year 628 money-order offices were in operation authorized to issue orders payable in the German

Empire and to pay orders drawn in that country; 31 offices were added to the list during the year, making a total of 659 in operation at its close.

The number of such orders issued in the United States during the year was 43,314, amounting to \$783,416.84, of which amount \$4,326.80 was afterward repaid to the remitters; and the number paid was 29,411, amounting to \$666,812.70.

The fees received for orders issued amounted to \$21,610.50.

A comparison of this business with that of the previous year exhibits an increase of \$51,543.04, or 7.04 per cent., in the amount of orders issued; a decrease of \$37,023.66, or 5.26 per cent., in the amount of orders paid, and an increase of \$1,474.70, or 7.32 per cent., in the amount of fees received.

The Auditor's statement of the revenue and expense account with Germany for the year ended June 30, 1877, is as follows:

Amount received for fees on orders issued.....	\$20,135 80
Amount paid for commissions and clerk-hire	\$10,845 09
Amount paid for incidental expenses	78 50
Excess of commissions paid Germany	1,364 93
Cost of exchange.....	200 65
Net revenue.....	7,646 63
	<hr/> 20,135 80

EXCHANGE OF MONEY-ORDERS WITH CANADA.

At the commencement of the last fiscal year 352 money-order offices were in operation, authorized to issue orders payable in the Dominion of Canada, and to pay orders drawn in that country; 23 offices were added to the list during the year, making a total of 375 in operation at its close.

The number of such orders issued in the United States during the year was 13,586, amounting to \$259,382.43, of which amount \$1,186.44 was afterward repaid to the remitters; and the number paid was 20,134, amounting to \$339,184.89.

The fees received for orders issued amounted to \$6,054.50.

A comparison of this business with that of the previous year exhibits an increase of \$32,166.21, or 14.15 per cent., in the amount of orders issued; of \$41,346.89, or 13.88 per cent., in the amount of the orders paid, and of \$820.90, or 15.69 per cent., in the amount of fees received.

The Auditor's statement of the revenue and expense account with Canada for the year ended June 30, 1877, is as follows:

Amount of fees received on orders issued	\$5,233 60
Excess of commissions received	392 86
Net loss.....	163 86
	<hr/>
Total	5,790 32
Amount paid for commissions and clerk-hire	\$4,844 92
Amount paid for incidental expenses	945 40
	<hr/> 5,790 32

EXCHANGE OF MONEY-ORDERS WITH ITALY.

In pursuance of the provisions of the postal convention between the United States and the Kingdom of Italy, which was concluded at Washington on the 31st day of March, 1877, the exchange of money-orders with the latter country commenced on the 2d day of July, 1877. During the year 142 money-order offices in the United States were authorized to issue orders for payment in the Kingdom of Italy and to pay orders drawn in that country.

The number of Italian orders issued in the United States during the year was 3,949, amounting to \$105,433.53, of which amount \$409.50 was afterward repaid to the remitters; and the number of such orders paid was 281, amounting to \$7,871.42. The fees received for orders issued amounted to \$2,816.50.

GENERAL FINANCIAL RESULTS OF MONEY-ORDER BUSINESS.

The gross number of domestic and international money-orders issued during the year was 5,733,905, amounting to \$83,490,061.73; and the gross number paid, 5,652,387, amounting to \$82,202,323.11.

To the net revenue derived from the transactions of the domestic money-order business, reported by the Auditor at \$202,952.37, should be added the net revenue derived from the exchange of money-orders with foreign countries, not yet ascertained by the Auditor, but estimated at \$9,000. This estimate makes the total net revenue for the year \$211,952.37, exclusive of the additional expenses, paid out of appropriations, hereafter mentioned.

In addition to the expenses enumerated in the foregoing statement made by the Auditor, the following items of expense, amounting to \$208,923.91, which are fairly chargeable to the money-order system, were paid out of general appropriations, viz: Salaries in the superintendent's office, \$35,642.86; salaries in the money-order division of the Auditor's office, \$112,200; books, blanks, and printing furnished for the money-order system by the Public Printer, \$56.081. 05; and books, blanks, and stationery not included in the last item, estimated at \$5,000.

NET REVENUE OF MONEY-ORDER BUSINESS.

After deducting the above-enumerated items of expense from the total net revenue, stated as above at \$211,952.37, there remains an absolute net profit to the credit of the system amounting to \$3,028.46 in excess of all legitimate expenses.

The sum of \$209,647.89, being the net proceeds of the domestic money-order business for the fiscal year ended June 30, 1878, added to the net proceeds of the international business for the previous year, as reported by the Auditor, has been deposited with the Treasury Department to the credit of the United States for the service of the Post-Office Department. The sum of \$201,162.45, due the postage account, by reason of the excess of transfers, heretofore mentioned, from that account to the money-order account, has been paid over.

FOREIGN MAILS.**WEIGHT OF MAILS.**

The total weights of the mails dispatched from the United States to Postal Union countries during the year were as follows: Letters, 96,398,276 grams, equal to 3,400,711 ounces; printed matter and samples, 411,842,398 grams, equal to 14,528,862 ounces, being an increased weight, over 1877, of 176,284 ounces of letters, and 1,219,975 ounces of printed matter and samples. A statement is appended of the weight of mails dispatched to each Postal Union country. (Pages 413-417.)

The number of letters exchanged with other countries not embraced in the General Postal Union, the Dominion of Canada excepted, was 697,551, of which number 394,313 were sent to, and 303,238 received from, such countries.

COST OF OCEAN MAIL SERVICE.

The total cost of the United States Ocean Mail Service, for the year 1878, was \$197,276.15, being a reduction of \$10,310.18 from the cost of the same service for the year 1877. Of this sum, \$152,661.13 was paid for the trans-Atlantic service, \$9,389.25 for the trans-Pacific service, and \$35,225.77 for the service to Canada, the West India Islands, Mexico, Central American and South Pacific States, Venezuela, Brazil, Uruguay, and the Argentine Republic. The particulars of these several services are appended to this report, page 371.

The additional sum of \$24,792.22 was recognized and paid to the steamship companies for the transportation of British closed mails from New York to England from April 1, 1876, to September 30, 1877, inclusive; and credit claimed therefor by this department in the quarterly accounts with the British office.

POSTAL CONVENTIONS.

A postal convention was concluded with the Colonial Government of Victoria (Australia) on the 28th of June, 1878, regulating the exchange of correspondence with that colony, a copy of which appears on page 375 of the Appendix.

An amended article to replace Article 3 of the postal convention between the United States and the Colonial Government of New Zealand has been executed by the respective post departments, a copy of which will be found on page 374. This article provides for the full prepayment of postage on printed matter, &c., to destination in either country.

ADMISSIONS TO THE GENERAL POSTAL UNION.

The territory of the General Postal Union formed by the treaty of Berne has been enlarged by the accession of the following countries and

colonies under the provisions of the special arrangement signed at Berne the 27th of January, 1876, viz :

The Argentine Republic, admitted from April 1, 1878.

The Dominion of Canada, admitted from July 1, 1878.

Peru, admitted from October 1, 1878.

Newfoundland, British colonies on the west coast of Africa (Gold Coast, Senegambia, Lagos, and Sierra Leone), the Falkland Islands, and British Honduras, admitted from January 1, 1879.

Copies of the several diplomatic acts confirming the admission into the General Postal Union of these several countries and colonies are appended to this report.

THE INTERNATIONAL POSTAL CONGRESS.

The International Postal Congress, called to revise and improve the system of the General Postal Union established by the treaty of Berne, was convened at Paris on the 1st of May, and continued in session until the 4th of June, 1878. The following countries and colonies were represented by delegates : The United States, Germany, the Argentine Republic, Austria, Hungary, Belgium, Brazil, Chili, Denmark, the Danish Colonies, Egypt, Spain, the Spanish Colonies, France, the French Colonies, Great Britain, certain British Colonies, British India, Canada, Greece, Hayti, Hawaiian Islands, Italy, Japan, Liberia, Luxemburg, Mexico, Montenegro, Norway, the Netherlands, the Netherland Colonies, Peru, Persia, Portugal, the Portuguese Colonies, Roumania, Russia, Servia, Salvador, Sweden, Switzerland, Uruguay, Venezuela, and Turkey.

THE UNIVERSAL POSTAL UNION.

A new convention extending and perfecting the provisions of the General Postal Union treaty concluded at Berne on the 9th of October, 1874, was agreed upon and signed on the 1st of June, 1878, by the delegates of all the above-mentioned countries and colonies except those of Chili, Hayti, Hawaiian Islands, Liberia, Uruguay, and Venezuela, who, although approving of its provisions, were unable to sign, not having received from their respective governments the necessary powers to that effect. This convention forms, under the title of "Universal Postal Union," a single postal territory for the reciprocal exchange of correspondence of every kind between the Post Departments of the countries which concluded it, or which may hereafter be admitted to be parties to it, upon their demand diplomatically notified to the Swiss Government and by that government to all the countries of the Union.

PROVISIONS OF THE NEW POSTAL CONVENTION.

No change is made in the present low Union rates of postage for letters and post cards, but many modifications of existing rates and regulations are adopted, the principal of which are—

1. A reduced sea-transit charge of 15 francs per kilogram of letters for

the maritime transportations which were fixed at 25 francs per kilogram by the special arrangement of January 27, 1876, admitting British India and the French colonies to the Postal Union.

2. A reduced sea-transit charge of 5 francs per kilogram of letters for the maritime transportations which were fixed at 6 francs 50 centimes by the treaty of Berne.

3. A reduced Union postage on printed matter of every kind, commercial papers and samples of merchandise, of 5 centimes (1 cent) for each article or packet bearing a particular address, and for every weight of 50 grams (2 ounces) or fraction thereof, with a *minimum* charge of 25 centimes (5 cents) per packet of commercial papers, and of 10 centimes (2 cents) per packet of samples of merchandise. In addition to these Union rates and the *minima* fixed for commercial papers and samples the following surcharges may be levied :

(a) For every article subjected to the sea-transit rates of 15 francs per kilogram of letters or post-cards, and 1 franc per kilogram of other articles, an additional charge not to exceed 25 centimes (5 cents) per single rate of letters, 5 centimes (1 cent) per post-card, and 5 centimes (1 cent) per 50 grams (2 ounces) or fraction thereof for other articles ; and as a temporary arrangement to meet the legal requirements of certain administrations, the stipulation in the Berne treaty authorizing the levying a surcharge up to 10 centimes (2 cents) per single rate for the letters subjected to the reduced sea-transit charge of 5 francs per kilogram was continued.

(b) For every article conveyed by services maintained by postal administrations foreign to the Union, giving rise to special expenses, a surcharge in proportion to these expenses.

4. A limit of dimensions for post-cards is fixed at not exceeding 14 centimeters ($5\frac{1}{2}$ inches) in length, and 9 centimeters ($3\frac{1}{2}$ inches) in width.

5. The maximum weight of printed matter of every kind, fixed by the Berne treaty at 1 kilogram, is increased to 2 kilograms ($4\frac{1}{2}$ pounds 6 ounces).

6. Samples of merchandise must not exceed 250 grams ($8\frac{3}{4}$ ounces) in weight, or the following dimensions : 20 centimeters (8 inches) in length, 10 centimeters (4 inches) in breadth, and 5 centimeters (2 inches) in depth.

7. No supplementary postage is chargeable for the reforwarding of postal packets of any kind within the interior of the Union.

8. The prepayment of the Union postage on ordinary letters is optional ; but the postage on all other articles must be at least partially prepaid.

9. The registration fee is established at the maximum charge of 25 centimes (5 cents) in European countries, and at a maximum of 50 centimes (10 cents) in all other countries of the Union.

10. Unpaid or insufficiently paid letters and insufficiently paid printed matter, commercial papers, or samples are to be charged in the country of destination with a postage equal to double the amount of the insufficiency.

11. Payment of postage on every description of correspondence can be effected only by means of postage-stamps valid in the country of origin for the correspondence of private individuals. Official correspondence, relative to the postal service and exchanged directly between the postal administrations, is alone exempted from this requirement, and transmissible by mail free of charge.

12. Each postal administration continues to keep the whole of the postages which it collects on the postal articles exchanged within the territory of the Union, dispensing with all accounts on this head. The only accounts between the several postal administrations of the Union are those relating to the expenses of the intermediary transportation of correspondence in open or closed mails, exchanged between any two administrations by means of the services of one or of several other administrations of the Union, and also those relating to the foreign charges upon correspondence conveyed beyond the limits of the Postal Union; these expenses to be defrayed by the administration which dispatches the correspondence, and to be adjusted on the basis of statistical statements of the actual weights thereof, taken every two years for a period of one month. The territorial transit charges payable to each of the countries traversed, or whose services participate in the intermediate conveyance of such correspondence, are continued at the low rate fixed by the treaty of Berne, of 2 francs per kilogram of letters and post-cards and 25 centimes per kilogram of other articles, excepting only the transit services maintained by the Post-Office Department of the United States between the Atlantic and Pacific Oceans; and those maintained by the postal administrations of France and Italy, for the accelerated conveyance of the Indian mail, both of which are classed as extraordinary services, the conditions of which are to be regulated by mutual agreement between the postal administrations interested.

WORK OF THE UNITED STATES DELEGATES TO THE POSTAL CONGRESS.

The delegates who represented the United States at this congress were Hon. James N. Tyner, First Assistant Postmaster-General, and Joseph H. Blackfan, esq., Superintendent of Foreign Mails. These gentlemen were entirely successful in securing, in the revised convention, every important interest of the United States, the chief of which, in a fiscal point of view, was the retention of the provision of the Berne treaty which excepts from the uniform territorial transit rates the lengthy and expensive railway transit across the American continent between the Atlantic and Pacific Oceans. During the discussions of the congress, they were obliged to interpose formal declarations against the adoption of two propositions, which were supported by an almost unanimous vote of the delegates from other countries, for the reason that the laws of the United States did not sanction their adoption in our interior postal service. One of these propositions related to the payment of a

fixed indemnity of 50 francs (\$10) to the sender of a lost registered article by the postal administration in whose service the loss has occurred, and the other was a proposition, strongly pressed by the German delegation, to pension employés of the international bureau who, after ten years of service, become disabled, and, in case of death of an employé, to pension his wife and unmarried children, up to the age of 18 years. Both propositions were adopted in committee, and would have been incorporated in the convention if the United States delegates had not formally declared that they could not accept them, because the principles involved were opposed to the laws of the United States.

The proposition respecting indemnities for lost registered articles was subsequently adopted in a modified form, permitting, as a temporary measure, the postal administrations of the countries whose legislation is opposed to the principle of responsibility, to postpone its application until they obtain legislative authority to subscribe to it, and stipulating that up to that time the other administrations of the Union shall not be required to pay indemnities for the loss in their respective services of registered articles for or from said countries. The proposition respecting pensions to employés of the International Bureau was abandoned, and provision made in lieu thereof for an increase of salaries, said increase to be applied, under the surveillance of the Swiss Administration, to an assurance in favor of their families.

LIMITED INDEMNITY FOR LOST REGISTERED MATTER.

As the principle of a limited responsibility in case of the loss of registered articles is acknowledged by a large majority of the countries comprising the Universal Postal Union, and is also adopted with a restricted application in the Convention of Paris, it is desirable for the sake of uniformity to apply it to all registered articles exchanged in the Union mails, and I therefore recommend that the necessary authority be given by law to enable this department to accept the general rules of the Union respecting the payment of indemnities for registered articles lost or destroyed in the United States Postal Service. The number of registered articles annually lost or destroyed is so small that the payments to be made on this head would be very trifling in amount.

Separate conventions for the exchange of money-orders and of declared values were also concluded and signed at the Congress by the delegations of some of the postal union countries; but as it was impossible, at present, for this department to accept the provisions of these arrangements, the United States delegates declined to become parties to them.

RATIFICATION OF THE UNIVERSAL POSTAL CONVENTION.

The Universal Postal Convention, a copy of which is hereto appended (page 297), was duly ratified and approved by and with the advice and consent of the President on the 13th of August, 1878, and will

be carried into operation on the 1st of April, 1879, replacing, from that date, the Postal Union Treaty concluded at Berne, on the 9th of October, 1874. Its general provisions are similar to those of the Treaty of Berne, but many improvements are adopted in reductions of sea transit charges and postage-rates, and in otherwise simplifying and extending the Postal Union system, the foundations of which were laid by the Berne Congress in 1874, and contemplated the formation of a single postal territory whose boundaries should embrace the whole world. In its origin the Postal Union comprised 23 countries having a population of 350,000,000 of people. On the 1st of April next it will comprise 43 countries and colonies with a population of more than 650,000,000 of people, and will soon, by the accession of the few remaining countries and colonies which maintain organized postal-services, constitute, in fact, as its new title indicates, a universal union, regulating upon a uniform basis of cheap postage-rates the postal intercourse between all civilized nations.

FOREIGN BOOKS BY MAIL SHOULD BE DUTY FREE.

I renew the recommendation made in my last annual report, that suitable provision be made by law for the delivery to addressees in this country free of customs duty of newspapers and other articles of printed matter received in the mails from foreign countries when dispatched in accordance with the conditions prescribed by the Universal Postal Union Convention. The fact that our laws impose customs duties on newspapers and printed matter of every kind received from foreign countries, causes embarrassment to this department in its relations with other postal administrations, as well as annoyance and inconvenience to our citizens who subscribe to foreign publications, or occasionally receive them from correspondents abroad. The duties chargeable on such publications, even if they could be readily collected, are too trifling in amount to justify the expenses of collection, and the placing of a restriction of this character on their free entry and circulation is not only in conflict with the stipulations of postal conventions with other countries which provided for the exchange of such articles through the mails subject to prescribe conditions of inclosure, weight, and prepayment of postage, but places the United States in the anomalous position of being the only country of the world whose laws exact customs duties on publications of this character received in the mails from other countries.

MISCELLANEOUS.

Several subjects upon which legislation was recommended in my last report to Congress were considered by the appropriate committees, were favorably reported upon, and are among the unfinished business of the last session of that body. I deem it unnecessary to enter upon a repetition of what I have heretofore stated in regard to these, and shall content myself with referring to my former report, so far as it relates to them, and renewing the suggestions therein contained.

DEFICIENCIES CREATED BY LAW.

As is shown in the reports of the First and Second Assistant Postmasters-General (page 58), and of the Superintendent of the Railway Mail Service (page 236), there are and there will be deficiencies in two important branches of the postal-service, viz: the salaries of postmasters and in the compensation paid railway companies for mail transportation. The amount of compensation to be paid to each is fixed by law.

Postmasters are divided into four classes, and their salaries are ascertained and determined in the mode provided by law, according to the amount of business transacted and the revenues collected by them. Congress has prescribed the exact method in which the compensation of the postmasters is to be computed. It is a mere matter of arithmetical calculation in which the department has no latitude or discretion.

SALARIES OF POSTMASTERS.

For example, a postmaster of the fourth class is entitled to his box-rents and to commissions on other postal revenues of his office, as follows: On the first \$100 of postage-stamps canceled at his office, per quarter, 60 per cent.; on all over \$100 and not over \$300 per quarter, 50 per cent.; and on all sums over \$300 40 per cent. The postmaster, on report and settlement, retains his commissions in such cases, and he thus obtains and retains his salary whether there be an appropriation by Congress for it or not. Therefore deficiencies, or the prevention of them, so far as the salaries and compensation of postmasters are concerned, are not and cannot be controlled by the department. If the amount appropriated by Congress for the purpose be not equal to the amount of compensation established by law, there must be a deficiency.

COMPENSATION OF RAILWAYS.

The law provides that railway companies may be paid for carrying the mails the following rates: On routes carrying their whole length an average weight of mails per day of 200 pounds, \$50 per mile; 500 pounds, \$75; 1,000 pounds, \$100; 1,500 pounds, \$125; 2,000 pounds, \$150; 3,500 pounds, \$175; 5,000 pounds, \$200; and \$25 for every additional 2,000 pounds. To companies which furnish postal cars additional compensation is allowed. To such lines as run a daily trip each way with a postal car 40 feet in length, \$25 per mile per annum; \$30 per mile for 45-foot cars; \$40 per mile for 50-foot cars; and \$50 per mile for 55 to 60-foot cars. By the last Congress these rates of compensation were reduced 10 per cent., and by the present Congress 5 per cent. additional. The appropriation made by Congress at its last session was not sufficient to pay for the existing service on the railroads thus prescribed. In addition to this fact, the weight of the mails carried is constantly increasing, and new railroads and parts of railroads are being continually added to our postal routes. It became

AN EMBARRASSING QUESTION TO THE DEPARTMENT

whether the railway-mail service should be reduced so as to correspond with the appropriation, or whether it should be continued as it then was until Congress should meet and the question might be referred to it for its judgment and decision. It was believed by the department that it would not do to withdraw the service from such a number of railroads as would reduce the cost of transportation within the amount appropriated. The only other method of reducing the expenses of this service would have been to discontinue the service as carried on and conducted by our postal-car system entirely, or to such an extent as would bring the expenditure within the appropriation. To have adopted this course would have led to great confusion and delay, and to great dissatisfaction and complaint on the part of the public. It would have carried us back to the system in vogue before postal cars were used. Separation offices would have been required on the lines of railways, at which the mail would have been stopped and deposited for separation and distribution, instead of having this separation and distribution made without detention or delay on the moving trains as is now done.

ANOTHER DIFFICULTY

in pursuing such a course is that it would necessarily lead to a large increase of force in such of the post-offices as might be made offices for separation of the mails, and no appropriation by Congress had been made, or considered, so far as I am aware, for such a purpose. Hence I have delayed making such radical changes in the service as would be required by reason of the sum appropriated to this branch of the postal service until Congress could be consulted upon the subject. Should no additional appropriation be made for this service, I shall feel it my duty under the laws so to curtail the service as to fall within the appropriation, however much I might consider the public interests injured thereby. I am satisfied it would lead justly to much complaint.

MAILS WOULD BE DELAYED

at the offices of separation hardly ever less than twelve hours, and most generally twenty-four hours. Letters, papers, and packages passing over great distances or circuitous routes would be detained at more than one such office in very many cases, and there would be delay in the immense number of transactions which are initiated, conducted, and completed by communications through the mails.

For this cause, business men would send their messages by telegraph instead of the mails, to a great extent, and the delay in the transmission of the remittances of business men would add largely to sums they pay by way of interest and exchange. In my opinion, it would cause a shock to our postal system from which it would not soon recover. Railway companies, which have been at the expense of furnishing postal cars,

might be slow to furnish us such conveniences a second time, and there is no law to compel them to do so.

REGISTRATION OF THIRD-CLASS MATTER.

Numerous complaints of the loss of valuable packages of third-class mail matter have for a long time been made to the department. Much matter of this class finds its way to the dead-letter office, because incorrectly or illegally directed, or through the destruction of imperfect wrappers, or because the addressee cannot be found, or for some other cause. The difficulty of detecting the theft of such matter in passing through the mails has furnished temptation and opportunity for its appropriation by persons of weak consciences through whose hands it ought to pass, sometimes agents of the senders or addressees, sometimes of the department. To give security from loss to the sender or addressee, and to save the department from scandal, it was deemed proper to do something to insure a more safe and certain passage of such matter through the mails. The efficiency and security of the registry system of first-class mail matter suggested the propriety of extending its provisions to valuable matter of the third class, and on the 1st of October last I ordered that valuable matter of the third class be registered upon the same terms and under the same provisions as matter of the first class, under authority of section 3926 of the Revised Statutes of the United States. This will add to the work of the department and make some increase of force in the more important post-offices and on the more important railways necessary, but the fees of registration will add a sufficient sum to the postal revenues to pay this additional force. This revenue, however, will go into the Treasury with the other postal revenues, and cannot be specially used under existing law to pay such additional force.

SUGGESTED MODIFICATION OF THE LAW REGULATING REGISTRATION.

Section 3928 of the Revised Statutes is as follows: "A receipt shall be taken upon delivery of any registered mail matter, showing to whom and when the same was delivered, which shall be returned to the sender and be received in the courts as prima-facie evidence of such delivery." This provision adds materially to the labor and expense of the registry system. Most senders have no desire or use for such a receipt. I therefore suggest that this section of the law be so changed as to make it the duty of the department to take and send such a receipt only when requested to do so by the sender.

THE DEPARTMENT NOT EXPECTED TO BE SELF-SUSTAINING.

If the revenues of the postal service were equal to its expenditures, no severe system of economy would be so necessary for its administration. Many of my predecessors have urged the establishment of higher rates of postage or the exclusion from the mails of such matter as did not pay

the expenses of its transportation, in order to make the department self-sustaining. Time and again it has been shown that matter of the second and third class does not pay its way through the mails, and Congress has been urged to increase the rates of postage thereon. The question has been considered time and again by the appropriate committees and discussed by both branches of Congress, and the results have shown that it was not expected that the department should be self-sustaining, but that the deficiencies in its revenues should be met by appropriations from the general Treasury.

DEFICIENCIES MUST INCREASE WITH BUSINESS.

If this be true and if this policy shall be continued, it necessarily follows that the deficiencies must increase in proportion to the increase of mail-matter of these classes, and if sums inadequate to meet these deficiencies be appropriated by Congress, the efficiency of the service must be crippled. The amount of matter sent through the mails free is very large, adding greatly to our expenditures and giving us no revenue.

THE FRANKING PRIVILEGE

has been restored to the members and chief officers of Congress, so as to allow them to send free almost everything which they were ever allowed to transmit through the mails free, except letters. Tons upon tons of books, documents, seeds, shrubs, and the like are placed in our mails, free of cost, on this score. The official letters of the executive departments of the general government, their documents, &c., go free through the mails. Newspapers sent to subscribers residing in the county in which the newspapers are printed and published go free through the mails. It costs the department just as much per pound to send this free matter through the mails as it does that on which postage is paid. A pound of seeds or public documents, or of speeches of members of Congress, or of reports of departments costs just as much as a pound of letters on which three cents for every half ounce has been paid.

HOW TO PREVENT DEFICIENCIES.

Now, I most respectfully but earnestly suggest that it would be better policy to reduce the deficiencies of the revenues of the department by curtailing or abolishing the list of free matter, and by increasing the rates of postage on merchandise, than by appropriating sums inadequate to an efficient, prompt, and fast transmission of the mails.

NECESSITY FOR NEW POST-OFFICE BUILDINGS.

The building used in San Francisco for post-office purposes I found from personal inspection to be entirely inadequate to the necessities of the service. San Francisco is the great commercial city of the Pacific coast. Its business and population are constantly increasing, thus add

ing to the embarrassments inflicted upon the postal service by its present insufficient accommodations. As several years are usually required for the erection of such buildings, and the necessity in this case is urgent, I feel constrained to call the attention of Congress to the subject for such inquiry and action as it may deem proper.

I also respectfully urge that some suitable building be provided for the Washington City office. It now occupies so large a portion of the departmental building, as to leave insufficient room for the clerks of the department, and renders the space available for files and records entirely inadequate. For want of other suitable room many tons of valuable records are now stored in the attic of the building, adding greatly to the danger from fire, in the event of which their destruction would be inevitable.

Very respectfully, your obedient servant,

D. M. KEY,
Postmaster-General.

The PRESIDENT.

REPORT

OF THE

FIRST ASSISTANT POSTMASTER-GENERAL.

REPORT
OF THE
FIRST ASSISTANT POSTMASTER-GENERAL.

POST-OFFICE DEPARTMENT,
OFFICE OF THE FIRST ASSISTANT POSTMASTER-GENERAL,
Washington, D. C., November 11, 1878.

SIR: I submit herewith statistical tables marked, respectively, A, B, and C, exhibiting in detail the operations of the free-delivery service and of the appointment division of this office. The results, as presented therein, show a marked increase in the business of those divisions over that of last year.

Yours, respectfully,

JAMES H. MARR,
Acting First Assistant Postmaster-General.

Hon. D. M. KEY,
Postmaster-General.

A.—Statement of the operations of the free-delivery

Post-offices.	Number of carriers in service June 30, 1878.	Delivered.					
		Mall.		Local.		Registered letters.	Newspapers.
		Letters.	Postal cards.	Letters.	Postal cards.		
Albany, N. Y.	25	2,496,051	325,501	258,849	213,858	5,278	1,107,391
Allegheny, Pa.	11	1,091,633	196,451	125,780	72,732	3,429	629,203
Atlanta, Ga.	6	652,097	179,087	45,115	68,269	11,637	417,567
Baltimore, Md.	63	5,423,956	765,346	1,115,082	824,808	29,664	2,071,091
Bangor, Me.	4	971,342	53,288	21,786	7,557	3,240	150,444
Boston, Mass.	157	9,945,057	2,071,009	4,509,741	2,069,472	40,272	5,080,421
Bloomington, Ill.	6	377,375	120,546	30,199	20,555	2,658	282,791
Brooklyn, N. Y.	89	4,929,887	1,124,014	956,428	2,861,682	21,671	20,631
Buffalo, N. Y.	34	3,492,300	406,582	434,764	339,452	22,471	2,118,887
Burlington, Iowa.	4	644,564	96,155	38,495	31,366	3,113	466,791
Camden, N. J.	6	754,974	114,536	53,956	37,498	1,473	261,987
Charleston, S. C.	8	465,240	100,304	62,541	58,217	3,867	233,619
Chicago, Ill.	157	18,230,344	3,208,523	2,418,550	1,864,978	187,010	5,642,536
Cincinnati, Ohio	71	7,099,067	999,532	1,478,787	862,666	29,911	1,991,824
Cleveland, Ohio	32	3,748,294	917,383	540,680	294,265	39,385	1,278,340
Columbus, Ohio	12	1,018,780	224,011	85,490	69,807	5,644	634,429
Covington, Ky.	4	270,440	58,470	13,073	13,151	941	161,418
Davenport, Iowa.	7	498,354	96,323	35,770	24,930	2,259	327,627
Dayton, Ohio.	12	1,088,753	256,577	135,559	83,978	7,754	587,737
Des Moines, Iowa	7	604,283	162,802	59,678	44,969	3,613	370,297
Detroit, Mich.	31	4,227,140	917,840	496,960	201,182	33,222	2,117,104
Dubuque, Iowa	5	518,619	139,460	25,447	21,397	5,379	319,134
Easton, Pa.	6	825,346	217,910	60,661	57,149	1,104	441,217
Elizabeth, N. J.	6	440,571	85,030	63,111	28,780	697	325,673
Elmira, N. Y.	6	694,440	143,184	52,780	30,333	5,315	283,049
Elric, Pa.	7	692,688	50,849	54,802	35,981	960	433,941
Evansville, Ind.	7	541,839	142,122	29,852	34,308	4,599	538,633
Fall River, Mass.	4	436,916	29,283	27,707	16,811	560	316,110
Fort Wayne, Ind.	7	805,576	83,708	96,779	90,314	3,292	684,744
Grand Rapids, Mich.	8	892,547	225,990	108,769	63,132	6,927	597,028
Harrisburg, Pa.	6	368,242	88,441	27,500	24,034	962	262,913
Hartford, Conn.	11	949,478	194,253	236,631	132,409	2,176	773,324
Hoboken, N. J.	4	254,012	64,440	18,743	23,670	1,187	108,936
Indianapolis, Ind.	28	2,914,401	467,917	285,662	194,421	14,925	1,364,122
Jersey City, N. J.	14	1,005,730	138,723	134,047	95,553	3,013	443,217
Kansas City, Mo.	11	1,778,264	324,681	127,957	78,760	18,209	629,027
Lafayette, Ind.	5	316,370	96,360	27,517	10,393	1,704	246,572
Lancaster, Pa.	5	513,425	84,358	27,663	20,289	1,292	286,534
Lawrence, Mass.	8	654,024	75,013	52,706	60,222	836	421,931
Leavenworth, Kans.	5	323,541	49,098	13,299	10,674	1,641	220,046
Louisville, Ky.	30	2,921,505	645,173	350,694	337,142	24,436	1,240,222
Lowell, Mass.	10	652,333	106,584	70,442	38,079	1,551	290,962
Lynn, Mass.	7	566,035	119,124	38,803	20,914	579	310,502
Manchester, N. H.	5	530,772	109,513	28,200	32,227	3,026	448,368
Memphis, Tenn.	12	1,465,316	162,656	103,745	71,918	13,169	462,379
Milwaukee, Wis.	26	3,178,652	376,907	319,069	385,475	23,025	1,027,662
Minneapolis, Minn.	9	656,408	91,329	74,328	47,882	4,929	537,572
Mobile, Ala.	6	345,906	55,969	39,463	31,464	1,425	317,195
Nashville, Tenn.	10	1,107,925	232,934	87,042	56,310	12,654	727,230
Newark, N. J.	24	1,885,191	443,434	299,059	245,943	9,030	942,646
New Bedford, Mass.	7	739,929	53,735	52,673	26,752	634	494,292
New Haven, Conn.	14	871,088	142,588	111,869	65,771	2,504	694,901
New Orleans, La.	47	1,738,223	230,632	358,961	278,191	18,472	976,930
New York, N. Y.	429	39,772,467	5,489,101	22,620,970	7,373,731	301,812	9,957,721
Norfolk, Va.	5	545,515	139,225	48,213	39,515	1,298	220,367
Omaha, Neb.	6	601,066	102,579	46,308	30,695	5,540	363,821
Oswego, N. Y.	6	416,804	89,011	30,444	14,000	1,356	220,315
Patereson, N. J.	7	450,412	58,267	45,318	25,720	1,504	407,194
Peoria, Ill.	8	653,968	168,686	30,496	34,975	3,678	271,626
Petersburg, Va.	5	429,125	93,631	15,199	15,202	2,396	264,234
Philadelphia, Pa.	247	22,676,664	3,812,630	12,291,577	5,069,572	93,010	13,379,883
Pittsburgh, Pa.	34	2,477,205	450,670	507,981	241,729	11,059	1,128,224
Portland, Me.	10	652,851	158,541	64,885	76,519	2,512	589,091
Pottsville, Pa.	4	241,070	57,766	17,177	8,159	846	205,622
Poughkeepsie, N. Y.	6	600,825	68,774	56,063	45,835	1,119	529,911
Providence, R. I.	20	1,166,868	212,517	298,700	117,235	2,845	733,330
Quincy, Ill.	7	648,365	166,465	53,056	31,263	6,769	418,616
Reading, Pa.	8	750,553	134,004	62,699	60,569	1,655	436,564
Richmond, Va.	16	1,245,985	276,373	100,116	91,807	10,581	603,081
Rochester, N. Y.	23	2,321,321	234,439	274,236	293,322	8,551	936,349
Saint Joseph, Mo.	7	824,822	173,391	47,062	34,750	8,640	607,519
Saint Louis, Mo.	107	10,012,011	1,408,134	1,384,212	1,143,524	86,976	4,238,926
Saint Paul, Minn.	10	1,036,345	162,965	57,490	55,680	14,317	580,377

STATISTICS OF FREE DELIVERY.

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system for the year ending June 30, 1878.

Collected.			Pieces handled.		Cost of service (including incidental expenses).			Postage on local matter.
Letters.	Postal cards.	Newspapers.	Aggregate.	Per carrier.	Aggregate.	Per piece.	Per carrier.	
1, 478, 061	376, 314	213, 577	6, 474, 580	270, 985	\$17, 948 12	2.77	\$717 93	\$8, 218 95
509, 157	107, 712	62, 730	2, 652, 827	241, 711	7, 899 37	2.97	718 13	3, 699 84
580, 284	173, 953	43, 557	2, 173, 546	362, 257	4, 970 67	1.96	711 77	2, 255 57
6, 851, 774	1, 698, 046	391, 194	19, 171, 161	304, 304	51, 517 90	2.67	817 74	33, 830 57
336, 572	90, 729	27, 473	962, 451	240, 602	2, 359 83	2.96	713 91	1, 030 31
13, 514, 133	3, 582, 838	1, 734, 291	42, 526, 234	270, 868	126, 329 73	2.97	804 65	152, 479 85
220, 181	92, 588	28, 145	1, 175, 238	195, 773	4, 439 80	3.77	739 96	1, 681 47
3, 835, 878	1, 394, 659	522, 038	15, 673, 086	175, 632	72, 743 69	4.64	811 91	57, 547 91
2, 200, 936	566, 315	223, 387	9, 791, 094	267, 973	27, 607 16	2.81	811 97	13, 105 24
501, 417	125, 169	114, 339	2, 021, 429	335, 904	4, 101 11	2.28	683 52	5, 547 80
284, 757	82, 318	55, 038	1, 646, 437	274, 406	4, 396 49	2.56	721 08	1, 501 69
362, 831	94, 329	53, 454	1, 454, 692	183, 077	5, 880 20	4.04	735 02	2, 127 90
50, 502, 011	5, 581, 917	5, 556, 357	63, 132, 216	217, 447	198, 997 37	2.04	821 58	2, 708 12
5, 680, 887	1, 213, 037	462, 038	19, 817, 769	279, 123	59, 647 44	3.00	840 10	90, 271 45
2, 747, 129	992, 941	355, 361	11, 513, 978	359, 811	29, 279 77	2.45	883 73	44, 175 43
690, 642	226, 900	65, 470	3, 031, 173	252, 597	9, 051 39	2.71	754 28	24, 674 99
121, 689	27, 463	12, 865	684, 510	171, 137	2, 795 89	4.08	698 97	4, 036 99
274, 423	84, 545	25, 792	1, 359, 652	194, 964	5, 169 68	3.90	738 53	1, 682 22
766, 302	298, 878	331, 664	3, 557, 003	296, 416	8, 716 36	2.45	727 11	1, 706 00
433, 227	135, 181	57, 665	1, 871, 775	267, 396	4, 738 90	2.52	676 12	3, 958 32
1, 810, 209	467, 012	232, 614	10, 509, 289	339, 009	26, 307 48	2.53	848 63	2, 588 27
502, 176	180, 276	57, 474	1, 775, 392	355, 064	3, 554 87	2.00	710 98	12, 523 72
661, 982	142, 499	352, 182	2, 819, 996	474, 499	4, 365 38	1.53	727 56	1, 147 57
222, 137	63, 576	3, 616	1, 327, 391	221, 231	4, 550 20	3.49	758 36	2, 536 43
294, 297	88, 070	47, 344	1, 628, 212	288, 128	4, 658 38	2.85	776 29	1, 770 02
278, 466	85, 008	54, 133	1, 616, 770	230, 967	5, 298 09	3.26	755 57	1, 826 96
385, 299	143, 055	46, 153	1, 866, 080	266, 522	5, 198 61	2.78	742 66	2, 123 69
169, 136	19, 547	30, 795	1, 046, 895	261, 791	2, 427 33	2.32	696 83	1, 105 00
661, 036	101, 536	77, 348	2, 514, 333	363, 478	5, 437 53	2.12	776 79	2, 061 11
709, 605	220, 538	68, 509	2, 893, 135	361, 241	5, 849 74	2.02	731 81	4, 061 83
139, 853	45, 254	14, 504	977, 849	162, 974	4, 183 55	4.28	697 51	3, 964 67
702, 710	142, 525	94, 112	3, 227, 678	107, 589	8, 059 52	2.49	732 68	1, 473 59
127, 607	47, 680	10, 344	656, 869	164, 217	2, 945 04	4.48	730 26	6, 353 97
1, 619, 365	478, 546	179, 634	7, 556, 359	269, 941	22, 085 26	2.92	785 55	637 55
543, 502	118, 621	54, 332	2, 536, 734	181, 196	9, 865 41	3.58	743 45	11, 156 58
936, 651	291, 376	321, 878	4, 708, 803	427, 891	8, 178 28	3.73	743 45	2, 976 20
214, 061	70, 620	25, 542	1, 009, 139	201, 227	3, 667 21	3.63	613 45	6, 157 81
151, 210	42, 140	13, 075	1, 150, 586	230, 117	3, 687 40	3.01	683 58	975 65
617, 502	85, 776	59, 806	2, 141, 866	267, 735	5, 795 05	3.10	724 38	640 26
304, 745	61, 157	54, 542	1, 109, 343	221, 868	3, 911 94	3.14	698 25	1, 936 58
1, 632, 503	567, 565	297, 979	7, 993, 251	266, 441	25, 211 69	3.27	840 39	685 40
752, 923	105, 879	50, 566	1, 899, 329	188, 733	7, 283 89	3.55	724 36	12, 002 24
394, 632	137, 347	42, 127	1, 683, 563	210, 516	5, 379 46	3.18	767 49	5, 892 89
257, 505	80, 197	43, 555	1, 533, 983	306, 796	3, 681 40	2.39	736 28	1, 857 65
773, 532	148, 235	123, 917	3, 294, 867	274, 572	8, 905 44	2.72	742 12	1, 224 02
1, 623, 307	510, 507	251, 810	7, 637, 334	393, 743	22, 456 81	2.94	863 72	2, 873 67
147, 985	106, 511	60, 935	2, 051, 885	228, 320	6, 894 40	3.32	880 46	13, 600 35
358, 485	60, 027	89, 017	1, 298, 971	216, 495	3, 446 58	2.63	574 76	3, 512 22
543, 041	166, 922	99, 008	3, 033, 971	393, 327	7, 070 60	2.33	707 06	1, 820 56
1, 098, 274	306, 634	180, 294	5, 349, 805	222, 908	19, 233 30	3.69	801 39	3, 261 77
348, 629	68, 369	19, 352	1, 805, 031	257, 861	1, 182 45	1.79	454 63	11, 740 34
731, 568	84, 746	74, 939	2, 787, 967	199, 141	10, 117 25	3.66	722 23	1, 999 35
2, 332, 301	564, 592	719, 695	7, 967, 841	154, 634	36, 613 33	4.87	779 00	14, 451 38
67, 540, 665	1, 766, 068	10, 103, 688	173, 198, 253	403, 558	334, 068 00	1.92	772 71	11, 625 38
684, 287	156, 721	50, 467	1, 885, 600	377, 120	3, 709 16	1.96	741 83	1, 220, 643 35
306, 088	138, 103	42, 763	1, 636, 988	278, 664	4, 436 85	2.71	739 80	2, 313 25
294, 517	67, 136	25, 228	1, 142, 811	191, 468	4, 421 44	3.84	736 90	3, 028 38
258, 634	62, 563	39, 916	1, 349, 534	192, 790	5, 359 83	3.97	765 70	1, 222 26
471, 119	166, 649	81, 502	1, 684, 689	235, 461	5, 894 94	3.70	738 87	1, 724 57
867, 591	81, 681	90, 255	1, 196, 844	239, 769	3, 571 17	2.14	714 23	1, 020 56
30, 697, 415	6, 757, 074	5, 624, 718	100, 589, 543	546, 152	219, 438 78	2.18	888 37	354, 191 51
1, 964, 474	341, 168	250, 299	7, 478, 909	219, 785	25, 088 33	3.70	826 04	16, 847 59
794, 215	220, 547	132, 863	2, 694, 042	269, 404	7, 329 27	2.72	732 93	3, 206 44
154, 097	46, 811	52, 412	664, 000	241, 000	2, 943 00	3.40	736 25	779 70
681, 194	139, 653	142, 934	2, 265, 608	377, 601	4, 212 51	1.85	702 08	1, 919 30
632, 250	158, 669	43, 715	3, 406, 768	170, 339	16, 351 46	4.83	827 57	14, 221 57
336, 910	119, 336	18, 624	1, 799, 429	257, 061	5, 126 53	2.74	732 36	1, 573 14
364, 315	109, 066	31, 638	1, 951, 103	243, 667	6, 063 39	3.10	757 98	1, 904 16
753, 637	184, 663	96, 572	3, 356, 815	222, 301	11, 300 98	3.36	701 91	3, 996 96
1, 678, 188	926, 703	96, 280	6, 049, 394	363, 017	16, 563 88	2.70	728 82	8, 444 80
554, 078	158, 998	104, 619	2, 525, 974	360, 856	4, 768 07	1.88	680 29	1, 864 32
7, 383, 587	1, 694, 391	1, 972, 405	39, 464, 256	303, 495	89, 943 49	2.15	840 59	42, 131 97
722, 205	216, 877	73, 047	2, 905, 263	290, 526	6, 979 51	3.23	697 95	2, 955 82

A.—Statement of the operations of the free-delivery

Post-offices.	Number of carriers in service June 30, 1878.	Delivered.					
		Mail.		Local.		Registered letters.	Newspapers.
		Letters.	Postal cards.	Letters.	Postal cards.		
Salem, Mass	6	368, 210	82, 123	43, 873	43, 972	10	312, 449
San Francisco, Cal.	45	3, 917, 223	224, 608	1, 470, 110	722, 984	21, 822	1, 732, 553
Savannah, Ga.	6	428, 898	92, 033	68, 415	44, 017	3, 138	181, 735
Springfield, Mass.	8	762, 238	162, 967	82, 516	41, 368	1, 835	211, 240
Springfield, Ill.	5	450, 602	113, 673	98, 349	19, 273	1, 790	240, 277
Syracuse, N. Y.	16	1, 782, 840	341, 933	222, 688	155, 694	7, 428	1, 028, 672
Toledo, Ohio.	15	1, 505, 762	160, 532	136, 152	100, 470	7, 391	822, 187
Trenton, N. J.	6	394, 721	79, 885	39, 143	22, 727	1, 001	270, 153
Troy, N. Y.	15	1, 619, 088	324, 152	228, 271	115, 378	4, 012	605, 331
Utica, N. Y.	13	1, 030, 835	234, 755	116, 267	65, 456	5, 637	227, 622
Washington, D. C.	40	2, 690, 581	328, 936	414, 890	175, 093	9, 000	1, 328, 024
Wheeling, W. Va.	6	617, 797	151, 839	41, 395	34, 673	5, 463	201, 450
Wilmington, Del.	10	629, 496	119, 395	75, 365	49, 466	1, 699	241, 277
Worcester, Mass.	11	684, 599	141, 209	102, 664	94, 144	2	410, 630
Total aggregate and averages...	2, 275	203, 462, 528	33, 877, 156	57, 481, 127	29, 194, 610	1, 222, 444	91, 922, 010
Compensation of special agents of the Post-Office Department paid out of the appropriation for							
Total.....							

system for the year ending June 30, 1878—Continued.

Collected.			Pieces handled.		Cost of service (including incidental expenses.)			Postal on local matter.
Letters.	Postal cards.	Newspapers.	Aggregate.	Per carrier.	Aggregate.	Per piece.	Per carrier.	
920, 373	69, 642	74, 735	1, 261, 387	913, 564	\$4, 307 39	3 36	\$717 79	\$1, 662 02
5, 966, 118	936, 006	879, 621	15, 943, 347	354, 296	42, 376 84	2 65	941 70	49, 348 32
409, 334	106, 933	53, 291	1, 387, 794	231, 299	4, 388 83	3 16	731 38	2, 874 24
425, 755	109, 424	47, 990	1, 945, 933	245, 241	5, 793 71	2 94	715 46	3, 460 63
223, 894	72, 518	54, 604	1, 313, 567	262, 713	3, 604 62	2 74	721 32	1, 189 37
1, 008, 680	323, 319	154, 987	5, 026, 127	314, 132	11, 634 26	2 31	739 64	6, 941 19
1, 222, 038	255, 509	240, 972	4, 253, 031	285, 686	11, 304 77	2 65	869 59	4, 914 94
290, 493	62, 440	34, 393	1, 194, 968	199, 164	3, 983 86	3 33	664 81	1, 996 87
1, 426, 091	289, 390	337, 443	5, 149, 178	343, 278	10, 611 01	2 05	707 40	6, 446 40
1, 817, 035	227, 042	79, 375	3, 104, 630	235, 818	9, 492 30	3 05	730 17	3, 804 75
1, 853, 589	222, 418	346, 507	7, 604, 078	190, 102	31, 868 81	4 19	796 70	17, 772 34
493, 468	147, 483	54, 111	1, 847, 690	307, 942	4, 416 83	2 39	736 13	1, 685 44
301, 344	89, 052	18, 651	1, 626, 564	162, 656	6, 994 75	4 30	699 47	2, 736 46
450, 990	122, 396	45, 037	2, 063, 736	114, 885	8, 350 02	4 04	759 09	6, 047 53
216, 042, 841	46, 932, 215	35, 565, 219	715, 782, 150	.....	1, 817, 896 96	.....	.....	2, 452, 251 51
letter-carriers from July 1, 1877.....					6, 270 00			
.....					1, 824, 166 96			

B.—Total operations of the appointment division of the office of the First Assistant Postmaster-General for the year ended June 30, 1878.

States and Territories.	Post-offices.				Postmasters.			
	Established.	Discontinued.	Names and sites changed.	Appointments on change of names and sites.	Resigned and commissions expired.	Removed.	Deceased.	Total number of cases.
Alabama.....	134	23	5	9	131	31	6	330
Alaska.....	11						1	1
Arizona.....	11		1	1	12	1		25
Arkansas.....	137	55	16	1	178	56	14	456
California.....	66	23	10	5	89	15	6	293
Colorado.....	45	16	9	6	82	3	2	163
Connecticut.....		2			31	4	1	38
Dakota.....	37		5	5	50	2		100
Delaware.....	3	1	1	1	7	2	1	15
District of Columbia.....	1				1			3
Florida.....	49	19	1	1	44	9	5	122
Georgia.....	166	19	8	1	166	14	9	282
Idaho.....	21	2	1	1	21	3	1	26
Illinois.....	66	35	13	8	243	30	15	492
Indiana.....	55	26	8	6	225	33	16	423
Indian Territory.....	8	3			18	3		24
Iowa.....	86	32	19	9	214	24	6	361
Kansas.....	123	36	34	22	226	34	9	468
Kentucky.....	102	31	14	6	227	26	11	411
Louisiana.....	69	22	6	2	70	24	7	198
Maine.....	42	8			78	10	11	149
Maryland.....	34	15	7	3	69	6	8	129
Massachusetts.....	12	2	1	1	48	5	7	78
Michigan.....	65	24	11	5	134	33	12	279
Minnesota.....	78	22	19	9	96	23	5	245
Mississippi.....	73	28	15	6	117	13	9	235
Missouri.....	120	45	30	8	283	43	13	534
Montana.....	26	7	3		19	6		61
Nebraska.....	52	27	17	8	134	14	3	247
Nevada.....	5	6	1		17	4	3	36
New Hampshire.....	15	4	1		22	9	4	62
New Jersey.....	20	2	4	1	45	5	5	71
New Mexico.....	23	8	1	1	22	3		37
New York.....	47	17	6	1	201	49	34	354
North Carolina.....	158	33	13	6	139	20	6	282
Ohio.....	51	14	13	6	244	55	16	383
Oregon.....	41	17	4	4	62	5		122
Pennsylvania.....	118	31	20	14	362	26	30	567
Rhode Island.....	2				9	1	1	31
South Carolina.....	51	19	7	2	60	9	4	150
Tennessee.....	126	19	18	4	151	26	7	347
Texas.....	172	63	26	9	241	23	7	532
Utah.....	13	5	1	1	25	2	3	49
Vermont.....	8	4	2	1	30	4	3	51
Virginia.....	147	36	13	2	208	7	14	423
Washington.....	25	7	4	2	26	3		45
West Virginia.....	83	31	7	4	90	11	11	223
Wisconsin.....	50	22	15	13	134	18	11	250
Wyoming.....	8	4			10	1	1	24
Total.....	2,784	871	418	184	5,117	748	338	10,278

C.—Table showing the increase and decrease of post-offices in the several States and Territories; also the number of post-offices at which appointments are made by the President and by the Postmaster-General, for the year ended June 30, 1878.

States and Territories.	Whole number of post-offices in the United States June 30, 1877.	Whole number of post-offices in the United States June 30, 1878.	Increase.	Decrease.	Number of postmasters appointed by the President June 30, 1877.	Number of postmasters appointed by the President June 30, 1878.	Increase.	Decrease.	Number of postmasters appointed by the Postmaster-General June 30, 1877.	Number of postmasters appointed by the Postmaster-General June 30, 1878.	Increase.	Decrease.
Alabama.....	856	967	111	.....	19	17	5	.....	844	950	106	.....
Alaska.....	2	2	.....	.....	.....	.....	.....	.....	2	2	.....	.....
Arizona.....	43	53	11	.....	2	2	.....	.....	40	51	11	.....
Arkansas.....	668	750	82	.....	6	8	2	.....	682	742	60	.....
California.....	771	814	43	.....	41	42	1	.....	730	772	42	.....
Colorado.....	236	265	29	.....	13	12	1	.....	223	253	30	.....
Connecticut.....	443	440	.....	3	37	45	8	.....	405	395	.....	10
Dakota.....	175	206	31	.....	1	4	3	.....	174	202	28	.....
Delaware.....	104	106	2	.....	3	4	1	.....	101	102	1	.....
District of Columbia.....	6	6	.....	.....	2	1	1	.....	4	5	1	.....
Florida.....	240	271	31	.....	7	7	.....	.....	233	264	31	.....
Georgia.....	811	896	85	.....	18	21	3	.....	793	877	84	.....
Idaho.....	73	92	19	.....	2	2	.....	.....	71	90	19	.....
Illinois.....	1,907	1,938	31	.....	129	150	21	.....	1,778	1,788	10	.....
Indiana.....	1,542	1,571	29	.....	58	67	9	.....	1,484	1,504	20	.....
Indian Territory.....	57	62	5	.....	.....	.....	.....	.....	57	62	5	.....
Iowa.....	1,402	1,456	54	.....	89	94	5	.....	1,313	1,363	49	.....
Kansas.....	1,139	1,226	87	.....	96	33	7	.....	1,113	1,193	80	.....
Kentucky.....	1,168	1,239	71	.....	94	97	3	.....	1,144	1,212	68	.....
Louisiana.....	347	349	2	.....	5	9	4	.....	342	385	43	.....
Maine.....	890	914	24	.....	23	26	3	.....	857	898	41	.....
Maryland.....	621	640	19	.....	9	12	3	.....	612	628	16	.....
Massachusetts.....	729	739	10	.....	93	103	10	.....	636	636	.....	.....
Michigan.....	1,251	1,292	41	.....	63	71	8	.....	1,188	1,221	33	.....
Minnesota.....	849	905	56	.....	23	27	4	.....	826	878	52	.....
Mississippi.....	576	621	45	.....	15	16	1	.....	581	605	24	.....
Missouri.....	1,531	1,606	75	.....	40	42	2	.....	1,491	1,554	63	.....
Montana.....	97	116	19	.....	4	6	2	.....	93	110	17	.....
Nebraska.....	614	639	25	.....	14	17	3	.....	600	622	22	.....
Nevada.....	96	97	1	.....	10	10	.....	.....	88	87	1	.....
New Hampshire.....	438	449	11	.....	24	25	1	.....	414	424	10	.....
New Jersey.....	656	674	18	.....	47	50	3	.....	609	624	15	.....
New Mexico.....	81	96	15	.....	1	1	.....	.....	80	95	15	.....
New York.....	2,839	2,869	30	.....	154	174	20	.....	2,685	2,685	.....	.....
North Carolina.....	1,175	1,300	125	.....	10	11	1	.....	1,165	1,289	124	.....
Ohio.....	2,222	2,259	37	.....	100	108	8	.....	2,122	2,151	29	.....
Oregon.....	305	329	24	.....	5	7	2	.....	300	322	22	.....
Pennsylvania.....	3,203	3,290	87	.....	113	125	12	.....	3,090	3,165	75	.....
Rhode Island.....	107	109	2	.....	10	11	1	.....	97	98	1	.....
South Carolina.....	511	543	32	.....	10	11	1	.....	501	532	31	.....
Tennessee.....	1,134	1,238	104	.....	15	17	2	.....	1,119	1,224	105	.....
Texas.....	1,022	1,131	109	.....	32	37	5	.....	990	1,094	104	.....
Utah.....	192	190	.....	2	3	3	.....	.....	179	187	8	.....
Vermont.....	489	493	4	.....	18	19	1	.....	471	474	3	.....
Virginia.....	1,469	1,600	131	.....	21	25	4	.....	1,468	1,575	107	.....
Washington.....	153	171	18	.....	3	3	.....	.....	150	168	18	.....
West Virginia.....	779	831	52	.....	8	7	1	.....	771	824	53	.....
Wisconsin.....	1,275	1,303	28	.....	51	58	7	.....	1,224	1,245	21	.....
Wyoming.....	51	55	4	.....	3	3	.....	.....	48	52	4	.....
Total.....	37,345	39,258	1,913	3	1,397	1,570	173	3	35,948	37,628	1,740	11

REPORT OF THE POSTMASTER-GENERAL.

Amount of second and third class mail matter originating at one hundred and eighty-one post-offices in the United States, for three months ending September 30, 1878, exclusive of matter for local delivery, and of matter received at these offices from other offices.

Post-offices.	Second class (in pounds).					Third class.		Unmailable matter.
	From office of publication.					One cent per ounce, in pounds.	One cent per two ounces, in pounds.	
	Dailies.	Weeklies.	Monthlies.	Quarterlies.	Newsdealers' packages.			
						Free country papers.		
Akron, Ohio.	948	1,750	177	.....	196	2,648	1,941	.....
Albany, N. Y.	21,181	55,045	150	.....	2,121	6,204	7,734	143
Allentown, Pa.	1,404	.....	252	6	2,204	.....	1,500	.....
Altoona, Pa.	1,702	18,405	1,666	29	194	5,904	810	38
Ann Arbor, Mich.	1,118	785	49	.....	.....	1,476	1,050	.....
Atchison, Kans.	.....	1,246	108	.....	3	1,690	2,970	.....
Atlanta, Ga.	4,643	2,944	241	.....	183	1,920	393	.....
Auburn, N. Y.	13,966	19,380	3,415	.....	20	1,376	13,714	14
Aurora, N. Y.	1,224	943	18	.....	25	1,407	1,915	.....
Augusta, Me.	1,027	57,630	128,936	.....	23	5,844	2,974	.....
Augusta, Ga.	8,470	2,298	38	.....	97	4,504	2,944	.....
Austin, Tex.	1,738	2,263	189	.....	231	621	2,640	.....
Baltimore, Md.	53,433	71,155	5,704	1,048	7,303	179	2,639	.....
Bangor, Me.	3,948	12,698	139	.....	97	506	52,608	95
Bath, Me.	395	535	.....	.....	51	506	4,805	.....
Beloit, Wis.	66	563	22	.....	51	313	927	.....
Biddford, Me.	197	1,556	.....	.....	93	129	937	.....
Binghamton, N. Y.	1,700	1,746	.....	.....	93	1,308	610	.....
Bloomington, Ill.	1,063	7,949	521	.....	123	5,435	960	.....
Boston, Mass.	136,563	530,816	106,138	786	9,665	5,905	2,417	.....
Bridgeport, Conn.	1,855	470	.....	.....	308	1,855	2,115	.....
Brooklyn, N. Y.	4,142	1,892	4,850	.....	5,014	72,816	184,855	117
Buffalo, N. Y.	19,022	21,946	745	.....	.....	31,346	87,936	.....
Burlington, Vt.	2,921	3,153	.....	.....	54	15,737	30,981	.....
Burlington, Iowa.	1,808	19,890	.....	.....	130	1,158	38,389	.....
Burlington, N. J.	748	748	.....	.....	.....	3,178	9,963	.....
Cedar Rapids, Iowa.	351	1,131	9,172	.....	15	949	1,568	.....
Charleston, S. C.	14,640	5,789	257	5	15	661	1,896	.....
Cheyanne, Wyo.	1,900	549	.....	.....	317	257	4,895	35
Chicago, Ill.	121,561	595,659	116,469	10,468	185,523	5,269	346	.....
Cincinnati, Ohio.	40,300	330,400	50,813	1,468	145,523	190,728	971,778	5,000
Cleveland, Ohio.	32,809	116,998	23,177	1,09	13,706	43,352	130,570	.....

[illegible]

*** Pieces.**

Amount of second and third class mail matter originating at one hundred and eighty-one post-offices in the United States, &c.—Continued.

Post-offices.	Second class (in pounds).				Newspapers' packages.	Free country papers.	Third class.		In pounds.
	From office of publication.						One cent per ounce, in pounds.	One cent per two ounces, in pounds.	
	Dailies.	Weeklies.	Monthlies.	Quarterlies.					
Lowell, Mass.	1,089	1,631	2		12	2,157	2,491	2,066	
Lynn, Mass.	65	1,598				256	2,180	2,682	
Madison, Wis.	6,930	15,149	2,396	1,415	320	458	1,669	9,039	
Manchester, N. H.	2,040	1,351	2,793		246	4,041	1,951	7,146	
Manassett, Ohio	1,703	13,305	428		94	2,303	1,840	2,489	
Marietta, Mich.	40	2,850	6		3	2,933	223	1,319	
Middletown, Conn.		419	50		298	735	940	899	
Milwaukee, Wis.	20,037	117,021	15,050		708	708	6,531	18,910	
Minneapolis, Minn.	2,892	9,075	671	125	907	956	2,823	7,034	
Mobile, Ala.	3,746	2,914	380		131	1,915	2,988	2,988	
Muscatine, Iowa	1,242	2,214	124		25	1,553	1,190	634	
Nashua, N. H.	12,641	38,360	29,638	8	630	981	4,965	12,240	
Nashville, Tenn.	234	310	692			1,118	1,007	1,317	
Natchez, Miss.	300	682	121			983	1,399	2,000	
New Albany, Ind.	7,212	5,701	266	207	1,358	3,963	15,635	29,453	
Newark, N. J.	1,666	3,537			47	1,115	1,430	2,104	
New Bedford, Mass.		130			75	1,196	503	1,195	
New Britain, Conn.	497	632			52	2,129	606	1,969	
New Brunswick, N. J.	1,610	2,437	83		461	3,415	6,873	12,818	
Newburg, N. Y.	5,391	5,096	673	674	113	646	10,371	29,614	
New Haven, Conn.	3,313	24,322	1,191	165	65	206	300,001	803,596	309
New London, Conn.	35,810	94,994	453,425	29,133	798,840		1,341	2,343	
New Orleans, La.	35,810	94,994	453,425	29,133	798,840		1,341	2,343	
Newport, R. I.	610,033	2,190,163	453,425	29,133	798,840		1,341	2,343	
New York, N. Y.	4,109	403			117	568	428	977	
Norfolk, Va.		1,324			307	2,694	1,208	3,459	
North Adams, Mass.		1,050			823	4,003	1,548	3,951	
Norwalk, Conn.	983	1,324			204	1,117	1,848	6,390	
Norwich, Conn.	1,364	5,931	917		104	216	354	1,630	
Oakland, N. Y.	10,138	15,630	297		104	4,098	439	1,731	
Oshkosh, Wis.	1,323	1,593							
Oswego, N. Y.	1,323	1,593							

Amount of second and third class mail matter originating at one hundred and eighty-one post-offices in the United States, &c.—Continued.

Post-offices.	Second class (in pounds).				Unmailable matter.			
	From office of publication.					Third class.		
	Dailies.	Weeklies.	Monthlies.	Quarterlies.			Free county papers.	One cent per ounce, in pounds.
Washington, D. C.	13,055	14,686	3,599	480	Total.	4,793	49,779	983
Waterbury, Conn.	5,539	1,906	73		856	911	1,092	
Watertown, N. Y.	5,461	6,821	83		134	648	2,440	
West Meriden, Conn.	5,579	417			115	11,570	2,085	
Wheeling, W. Va.	6,594	5,386			56	390	1,983	
Williamsport, Pa.	1,845	3,966	63	16	566	138	3,588	
Wilmington, Del.	3,711	2,479	19		92	1,713	1,959	
Wilmington, N. C.	4,775	4,25	1,133		376	2,963	2,306	
Woonsocket, R. I.	1,180	8,480			35	1,091	1,593	
Worcester, Mass.	2,757	2,478			195	700	1,232	
Yonkers, N. Y.	.....	884			569	623	409	
York, Pa.	963	1,514	1,159	7	6,730	4,592	6,730	
Ypsilanti, Mich.	.....	1,394	6		569	469	1,373	
Zanesville, Ohio	634	2,883			153	1,303	1,686	
					21	559	613	
					269	624	2,993	
Total	2,119,368	5,939,992	1,368,773	69,970	1,105,363	546,385	1,902,686	2,903,543

* 1,111,991 pounds unregistered free matter, 98,553 pounds registered free matter, in addition to amount here reported.

POSTAL CONFERENCE.

In the month of September, 1878, after consultation with a large number of interested parties, the following circular-invitation was signed and sent to boards of trade, chambers of commerce, newspaper publishers, book publishers, prominent houses in various branches of trade, and the postmasters of the leading cities of the country. The Post-Office Department was also invited to be represented.

SIR: The postal service of the country is allied to so many individuals, and affects so many interests, that legislation relative thereto is watched with much concern. The people ought to insist that such legislation should be simple, uniform, and just; simple, because it needs to be understood by everybody; uniform, so that it will be equally related to all like interests; just, because the motive to all public or private actions rests in the confidence of individuals in each other and in the rectitude of their purposes.

It has sometimes happened that proposed legislation, very much desired, has been deferred or defeated through indifference on the part of the people, and therefore it is always desirable for a department of the government to have the co-operation of the public in securing from Congress the enactment of wise and beneficent laws.

A bill "relating to the classification of mail matter and rates of postage thereon" is now pending in Congress, which is so good in its purpose and scope that it ought to become a law at the earliest date practicable. It liberalizes the treatment of every class of mail matter, simplifies the classification so as to make it intelligible to all who use the mails, gives enlarged discretion to the Postmaster-General in the disposition of mail matter, makes possible a uniform and consistent action at every post-office in the country, and removes many of the arbitrary and invidious distinctions which make the present law so objectionable.

This bill has a position upon the calendar of both houses of Congress which entitles it to early consideration; but inasmuch as the approaching session will be the short one, and legislation of every nature will crowd itself upon the attention of the members of both houses, it is deemed advisable that the public should take some steps to aid the department in securing the passage of this bill, or one similar in its scope and purpose.

It is proposed, therefore, to hold a conference in the city of New York, on Wednesday, the 9th day of October next, to which you are invited to send delegates.

It is hoped that representatives from the Post-Office Department will be present, and it is suggested that besides taking action upon the bill now pending, an interchange of views be had upon the wants and necessities of the service, regarded from an outside standpoint, among which, to which special attention is called, may be mentioned—

- The classification of mail matter;
- Uniformity of rates;
- Extension of the letter-carrier system;
- Disposition of unpaid letters.

You are requested to communicate with Mr. H. E. Simmons, 150 Nassau street, or W. H. C. Price, 163 Chambers street, New York, on or before the 1st of October, giving the names of delegates whom you have selected to represent you.

(Signed)

HARPER & BROTHERS, Publishers, New York.

ELLWOOD E. THORNE, Chairman Exec. Com. U. S. Board of Trade, New York.

W. H. C. PRICE, Publisher of the Grocer, New York.

H. K. & F. P. THURBER, Grocers and Importers, New York.

PATRICK FARRELLY (American News Co.), New York.

H. E. SIMMONS, Business Agent, Am. Tract Society, New York.

SAMUEL COLGATE (Samuel Colgate & Co.), New York.

STEPHEN N. STOCKWELL (The Journal), Boston.

H. O. HOUGHTON (Houghton, Osgood & Co.), Boston.

FRANK A. ALLEN (Allen, Shupleigh & Co.), Boston.

JOHN W. CANDLER, President Board of Trade, Boston.

JOHN CUMMINGS, President Shawmut National Bank, Boston.

THOS. W. BICKNELL, Publisher Journal of Education, Boston.

W. B. JUDSON, Editor Northwestern Lumberman, Chicago.

CHARLES RANDOLPH, Secretary Board of Trade, Chicago.

CALLAGHAN & Co., Law Publishers, Chicago.

WM. PENN NIXON (The Inter-Ocean), Chicago.

A. F. SHAPLEIGH & CO., Saint Louis.

SIMMONS HARDWARE CO., E. C. Simmons, Pres., Saint Louis.

APPLETON, NOYES & MAUDE, Saint Louis.

DODD, BROWN & CO., Saint Louis.

GREELEY, BURNHAM & CO., Grocers, Saint Louis.

C. L. THOMPSON, Secretary Board of Trade, Saint Louis.
 GEO. KNAPP & CO., Proprietors Missouri Republican, Saint Louis.
 S. F. COVINGTON, President Board of Trade, Cincinnati.
 ROBERT CLARKE & CO., Publishers, Cincinnati.
 * M. HALSTEAD & CO., Proprietors Cincinnati Commercial.
 * ENQUIRER COMPANY, Cincinnati Enquirer.
 CYRUS BUSSEY, President Chamber of Commerce, New Orleans.
 CLAXTON, REMSEN & HAFFELFINGER, Publishers, Philadelphia.

In accordance with this call, the conference, composed of gentlemen from all parts of the country, met in the post-office at New York October 9, were called to order by J. W. Harper, jr., and organized by the choice of Ellwood E. Thorne, of New York, as president, and H. E. Simmons, of New York, as secretary.

After the appointment of various committees, the conference proceeded to discuss—

“The principle of registration as applied to second-class mail matter.” Opened by a paper by T. W. Bicknell, of Boston, followed by one by S. S. Wood, of New York.

“The disposition to be made of unpaid and partially-paid letters.” A paper on this subject was read by Charles Hutchins, of Boston.

“The demand for frequent, punctual, and quick communication, and the free-delivery service in its convenience and economy.” Discussion opened by H. O. Houghton, of Cambridge, Mass.

“The proper functions of the Post-Office Department.”

All of these topics were fully discussed, and the last one was considered under the following questions:

At the time of the original establishment of the Post-Office Department as a branch of the government, were its operations intended to include anything beyond the transportation and delivery of correspondence, and the dissemination of public intelligence?

Since that time have any circumstances arisen which would justify a departure in any direction from the principle referred to in the preceding question, so as to extend the functions of the post-office beyond those limits?

Is it in accordance with a sound public policy for the Post-Office Department to assume, or to be required by law to undertake, the functions of a common carrier, and so to enter into competition with private individuals or corporations engaged in that vocation?

The conference then adopted the following resolutions:

Resolved, That the primary object of the postal service is the dissemination of correspondence and intelligence for the benefit of the whole people, and that its highest function consists in affording the greatest facility for the interchange of thought and opinion upon subjects of common interest. As an educator and an agent of the greatest importance in the promotion of the public good, the Post-Office Department should altogether refuse its facilities for the distribution of matter deemed injurious to the public morals; “should limit its facilities in the transportation of matter designed simply for the promotion of individual interests,” but should carry with the fewest restrictions, and at as cheap a rate as possible, that matter which tends to promote the public good.

Resolved, That experience having demonstrated that facility of frequent, punctual, and quick communication are elements of profitable commerce, it follows that rapidity of transit, convenience of deposit, and facility of delivery, which the institution of the Post Office was calculated to secure, are elements which very largely tend to promote postal revenue. For these reasons the government should encourage the fast-mail service, and the extension of the letter-carrier system, so that the deliveries may be increased, and its field of operations made more general.

Resolved, That we indorse the general purpose and scope of the pending bill, “relating to classification of mail matter and rates of postage thereon,” the principle of registration of second-class matter, uniformity of rates upon the same kinds of mail matter, and simplification of mail matter, and we recommend such a bill to Congress as may be calculated to promote the public convenience, suggesting, however, such revision as shall, among other things, prevent the Post-Office Department from unjustly refusing registration, as shall define third-class matter, and shall specifically repeal such provisions in existing laws as are intended to be superseded.

* Without committal to any form of bill.

Resolved, That we express our gratification at the recent steps taken by the Post-Office Department to promote the convenience and efficiency of the service in its registering third-class matter, and gratefully recognize its courtesy in inviting the public to present its views upon proposed legislation.

Resolved, That as the service of the Post-Office Department tends so largely to the development of our commercial and national prosperity, the appropriations made by Congress for the maintenance of that service should be made in a spirit of liberality as well as wise concern for the public good.

Resolved, That the thanks of the members of the postal conference are extended to Hon. T. L. James, postmaster of New York, for his courtesies in extending to us the use of his rooms for the meeting of the conference, and for various kindnesses shown to the members of the conference.

Resolution of thanks to the president and secretary was passed.

The committee on a permanent organization reported against such a plan, but in favor of an executive committee, to whom all resolutions, unfinished business, and the general duty of pressing postal reforms should be committed.

The conference appointed as such committee—

Joseph W. Harper, jr., New York; H. E. Simmons, New York; Ellwood E. Thorne, New York; W. H. C. Price, New York; Patrick Farrelly, New York; Birdseye Blakeman, New York; Walter Lippincott, Philadelphia; Charles Randolph, Chicago; C. L. Thompson, Saint Louis; E. L. Joy, Newark, N. J.; Charles Hutchins, Boston; H. O. Houghton, Boston; W. B. Judson, Chicago; W. E. Sheldon, Boston; T. W. Bicknell, Boston; Henry C. Lea, Philadelphia; John D. Wattles, Philadelphia; George Bliss, New York; and W. V. McKean, Philadelphia.

The convention adjourned *sine die*, October 10.

ELLWOOD E. THORNE, *President*.

H. E. SIMMONS, *Secretary*.

A meeting of the executive committee was held at the close of the conference, October 10, and the committee organized by appointing Joseph W. Harper, jr., chairman; H. E. Simmons, secretary; and Ellwood E. Thorne, treasurer.

Subcommittees were appointed as follows:

On resolutions from the conference: Messrs. Hutchins, Bicknell, Farrelly, Price, and Wattles.

On finance: Messrs. Farrelly, Thorne, Houghton, Randolph, Lippincott, and Thompson.

The committee then adjourned to meet at the call of the executive officers.

H. E. SIMMONS, *Secretary*.

REPORT

OF THE

SECOND ASSISTANT POSTMASTER-GENERAL.

REPORT

OF THE

SECOND ASSISTANT POSTMASTER-GENERAL.

POST-OFFICE DEPARTMENT,
OFFICE OF THE SECOND ASSISTANT POSTMASTER-GENERAL,
Washington, D. C., November 1, 1878.

SIR: At the close of the last fiscal year, June 30, 1878, the

ANNUAL COST OF INLAND TRANSPORTATION

was as follows, viz:

On 1,000 railroad routes, aggregating 77,120 miles in length.....	\$9,566,595
On 106 steamboat routes, aggregating 18,069 miles in length.....	752,483
On 8,811 other routes, designated as "star routes," aggregating 206,777 miles in length.....	5,714,943
Total cost.....	16,034,021

Compared with the state of the service at the close of the preceding year, the railroad routes show an increase of 42 routes in number, of 2,574 miles in aggregate length, and \$512,659 in annual cost.

The steamboat routes show an increase of 8 routes in number, of 384 miles in aggregate length, and \$85,494 in annual cost; and the "star routes" an increase of 633 in number, of 6,188 miles in aggregate length, and of \$50,973 in annual cost. Taken together, the increase in the number of routes was 683; in the aggregate length, 9,146 miles; and in the annual cost, \$649,126.

The small increase in length of steamboat routes, 384 miles, compared with that of last year, 2,802 miles, with an increase of pay of \$85,494 against \$60,524, is owing principally to the change in said service in the State of Florida, as follows, viz:

The contract for service on route No. 16,089, New York by Key West to Galveston, Tex., 2,036 miles, expired June 30, 1877. It was then thought that Key West could be better supplied from Cedar Keys, and accordingly service on route No. 16,091, Cedar Keys to Key West, was increased to twice a week from October 1, 1877, at \$17,250 additional per annum.

The service on route No. 16,094, New Orleans to Key West, 752 miles, was so insufficiently performed that it was useless, and was therefore discontinued from October 20, 1877. It was then desired to provide more efficient service to Key West, and also more rapid communication between New York and Havana. To secure these objects, three-times-a-week service was ordered on route No. 16,091, Cedar Keys to Key West, from February 1, 1878, at \$17,250 additional per annum, (making total increase of pay on this route \$34,500 per annum) with the understanding that each mail-steamer should run through to Havana.

CONTRACTS.

Number of contracts drawn during the year ended June 30, 1878.....	7,858
Number of official and certified copies made during same period	154
Number redrawn on account of failures of contractors during same period.....	800
Total	8,812

COST OF RAILWAY MAIL SERVICE IN EXCESS OF APPROPRIATIONS.

The amount appropriated for the transportation of mails by railroad for the year ended June 30, 1878, was \$9,250,000. The actual cost of the service on the 30th of June, 1878, so far as the adjustments are completed, was at the rate of \$9,566,595 per annum, which is at the rate of \$316,595 per annum in excess of the appropriation.

I desire to call your particular attention to this subject, so that the position of this office with regard to the expenditures for the transportation of mails by railroad may be clearly understood.

It is the duty of this department to provide for the transportation of all mailable matter which may be presented in the form prescribed by law.

The act of Congress approved March 3, 1873 (subsequent acts reduced the rates only), directs the Postmaster-General to pay certain rates of compensation for certain average weights of mails per day, as therein prescribed, and that act also provides that certain rates of compensation shall be paid for railway post-office cars.

It will be seen, upon reflection, that the Postmaster-General has no authority or power to control the amount of mail matter to be forwarded, which represents about 90 per cent. of the cost of railroad transportation, and that the law itself prescribes the rates to be paid therefor, without reference to the sufficiency or insufficiency of the appropriation.

There are two ways, however, in which the expenditures for transportation by railroad may be reduced by this department, viz:

First. By discontinuing the mail service on as many roads, serving the smallest number of people, as may be necessary to bring the cost within the desired limit.

Second. By discontinuing as many lines of railway post-office cars as may be necessary to accomplish the desired abatement.

DIFFICULTY OF CONTROLLING EXPENSE OF RAILWAY MAIL SERVICE.

Other difficulties in the way of controlling the annual expenditures for railroad transportation are these, viz:

First. The transportation of mails is authorized on newly constructed railroads, leaving the rates of pay to be determined upon returns showing the amount and character of the service when it is fairly established; and there is no other way in which the rates of pay proper to be allowed can be ascertained. Therefore, the cost of new service, in any case, is not ascertained until the greater portion of the fiscal year in which it originated has expired. Also, the miles of railroad constructed in each year vary. For instance, there are 2,574 miles of new service for the year ended June 30, 1878, against 2,198 miles for 1877.

Second. Numerous cases arise every year, in which it is necessary to reweigh the mails—say from January 1—and the returns of such weighings, if the lines are important and the car service complicated, will not be perfected until near the close of the fiscal year; so that the amount to be paid under these readjustments cannot be accurately determined until it is too late to discontinue enough service to bring the cost of the whole within the appropriation.

As a conclusion, therefore, the restricting of the railroad service to bring the cost thereof within an appropriation which is not sufficient to cover the expense of the service at the rates prescribed by existing laws, involves either the withdrawal of facilities for the distribution of the mails in transit, or the total discontinuance of service on a portion of the railroads supplying the mails to the least important towns and villages.

INSUFFICIENCY OF THE APPROPRIATION FOR 1879.

The amount appropriated to cover the cost of the transportation of mails by railroad for the current fiscal year is \$9,100,000. All deductions have been made in the rates of compensation required by the act of June 17, 1878, yet the cost of the service on the 30th of September, 1878, is found to be at the rate of \$9,360,000 per annum. To this must be added the cost of new service for three-fourths of the year, which, at the rate of construction for 1878, will be about 2,000 miles; this, at \$50 per mile, will bring the cost to \$9,460,000, aside from the increase of pay incident to the growth of the service. Thus it is definitely ascertained that the additional sum required to cover the cost of service for 1879 is about \$400,000. In this case there will be no deficiency created, as the department is in possession of the facts in time to discontinue sufficient service from January 1, 1879, to bring the cost of the service within the \$9,100,000 appropriated, if such be the will of Congress.

ESTIMATE FOR 1880.

The cost of the transportation of mails by railroad for the fiscal year ended June 30, 1877, was \$9,053,936. The cost of the service on the 30th of June last, the close of the fiscal year of 1878, was at the rate of \$9,566,595 per annum, making an increase for 1878 over 1877 of \$512,659, or 5.66 per cent. The cost for the fiscal year ending June 30, 1879, as shown by facts and estimates, will be not less than \$9,500,000. In estimating the amount necessary to be appropriated to cover the cost of transportation by railroad for 1880, it is proper that the estimate of the cost of conveying the mails on newly constructed roads should be greater than it has been for the three years last past. The reasons for this are that there have been and now are large immigrations into the undeveloped farming and mineral districts of the West, Northwest, and Southwest, through which a necessity is being created for railroad communications as great, perhaps, as has ever existed, and the time is at hand when capital can be employed in the construction of railroads with as much advantage as at any time in the history of the country.

The increase for 1878 over 1877 is 5.66 per cent., and during that period the depression in business of all kinds, as is generally conceded, reached the lowest point. In view of these facts it is believed that the rate of increase for 1880 should be about 8 per cent. (7.89) over the estimated cost for 1879; therefore, accepting the cost for 1879 to be \$9,500,000, the cost for the fiscal year ending June 30, 1880, is estimated at \$10,250,000. This sum is 10.82 per cent. more than the \$9,250,000 appropriated for 1878; 12.63 per cent. more than the \$9,100,000 appropriated for 1879, and 7.89 per cent. more than the \$9,500,000 required for 1879.

THE REDUCTION OF 5 PER CENT. BY ACT OF JUNE 17, 1878.

The abatement of 5 per centum in the compensation of railroad companies for conveying mails from July 1, 1878, has been the occasion of much complaint and dissatisfaction.

The greater number of leading companies have entered formal protest against this reduction, and claim that there should be a decrease in service corresponding to the reduction in pay; and some of the companies have expressed a desire to be relieved of the postal service altogether, asserting that they continued to perform the service temporarily for the sole reason that their refusal to do so would entail great inconvenience and loss to the business men located on their respective lines.

DELIVERY OF MAILS BY RAILROAD COMPANIES FROM STATIONS TO POST-OFFICES.

In the last annual report, attention was called to the service rendered by railroad companies in delivering mails from stations to post-offices.

As the question of revising the rates of compensation is now before Congress, I deem it proper to again invite attention to the subject, for the reason that it is the opinion of this office that this service should be assumed by the government, in order to bring the railroad service to a maximum degree of usefulness to the public.

It has been asserted, and truly, that the delivery of mails into post-offices is no more than is required of contractors for "star" service; but the circumstances under which the mails are delivered are very dissimilar. On a "star" route the distance is computed for the *actual* distance which the mails are carried. The distance on a railroad route is accepted to be between the terminal post-offices; so that the distances from intermediate stations to post-offices, if less than 80 rods, is not considered.

The rates of compensation heretofore prescribed by law for railroad service have been intended to cover all service performed; yet these rates do not properly compensate for the item of delivery to post-offices; for, on some routes, nearly all the intermediate offices are within 80 rods of stations, and are supplied by the companies; while on others nearly all are over 80 rods, and are supplied at the expense of the government. Thus, while two roads may receive like rates of pay, one may deliver at all intermediate stations, and the other at none.

The main objection to the delivery of mails from stations to intermediate offices by railroad companies is that the work is generally done by the persons employed at the stations, who usually consider the mails to be of secondary importance, and leave them until the railroad business is disposed of and then deliver them.

The inadequacy of the present pay on short routes is again mentioned, for the reason that frequent protests have been received, and statements made showing that the compensation received for all service rendered was not as much as a reasonable compensation for the delivery of mails from stations to post-offices would amount to.

The provision made by existing laws for the delivery of mails is too indefinite to be with propriety continued as a part of the proposed new law for the revision of the rates of pay for conveying mails on railroad routes, and the service of delivering the mails should either be made an element of the basis of compensation to be paid for according to the work done on each route, or the railroad companies relieved of its performance. A service performed without specific compensation is and must always be a fruitful source of dissatisfaction and controversy.

This office does not concur in the idea presented in the suggestion of the railway commission that "some arrangement can probably be made with the railroad or express companies to perform the side service for a gross sum not exceeding \$750,000."

It was shown in the last annual report that railroad companies in certain States had been employed in some cases to deliver mails to offices over 80 rods from stations, at an aggregate cost of \$35,273.50 per annum. Proposals were invited for the performance of the same service, and \$23,197.58 per annum was saved to the government.

Having this experience in view this office is of the opinion that side service can be obtained, if assumed by the government as separate and apart from railroad service, at more reasonable rates by inviting competition than in any other way.

The railroad companies can undoubtedly perform the service more cheaply than private parties, and, if they wish, can secure the service in all cases by making the lowest proposals.

THE PROPOSED LAW REGULATING THE COMPENSATION TO RAILROADS UPON THE BASIS OF SPACE, SPEED, AND FREQUENCY.

As the result of the report of the special railway commission a bill was introduced at the last session of Congress proposing a radical change in the method of compensating railroad companies for carrying the mails. This bill substitutes space, speed, and frequency as the basis of compensation instead of the weight of the mails, which the present law makes the principal element, and space, speed, and frequency indefinite factors in the basis upon which the present rates of pay are determined.

The act of March 3, 1873, provides for and secures to the railroads a like rate of compensation for a like average weight of mails carried in all cases; and, in the same manner, fixes the rates of compensation for the several lengths of railway post-office cars. This is a great advance beyond all preceding laws on that subject, as the act provided one certain and incontrovertible basis, founded on a material fact, the weight of the mails, whereas, under previous laws, nothing was fixed except the rates of compensation. It was left to the Postmaster-General to determine whether the service on a route warranted the allowance of the maximum or minimum rate of compensation.

In 1867 the service rendered by railroad companies was gauged by the system substantially embodied in the act of 1873, and the result showed conclusively that the judgment exercised in assigning roads to the several classes, in a large number of instances, bore about the same relation to the amount and character of the service rendered as would have resulted had the assignments been made entirely by chance. The result of this was great injustice both to the government and to the railroad companies.

It is believed that the enactment of a law making space, speed, and frequency, the basis of compensation would be a decided improvement on the present law, as the requirements of the service in respect to these most important items are not now set forth with sufficient distinctness to make the execution of the law as direct, clear, and simple as the importance of the subject demands. But the passage of an act, fixing certain rates per linear foot per mile, according to the speed of trains, &c., without prescribing a gauge expressly limiting the amount of space to be required in each case, would leave the amount of space to be used and paid for to the discretion of the Postmaster-General; this would leave to *his judgment* the rates to be paid for conveying the mails on 77,000 miles of railroad. Argument to show that this should not be done is unnecessary.

With the view of giving form to this suggestion, I submit a plan to gauge the space to be required and paid for on each route.

Weights per day.	Minimum, 5.82 mills per mile per annum.	Maximum, 7.12 mills per mile per annum.	Size of apart- ment.	Equivalent for frequency.	Number, of linear feet to be paid for.
<i>Pounds.</i>			<i>Feet.</i>		<i>Feet.</i>
200	\$43 71	\$53 43	12		24
12 trips or more	54 63	66 85	15	Or its equivalent	30
500	65 56	80 91	18		36
12 trips or more	72 84	89 12	20	Or its equivalent	40
1,000	80 14	98 05	22		44
12 trips or more	87 42	106 96	24	Or its equivalent	48
1,500	94 71	115 88	26		52
12 trips or more	101 99	124 79	28	Or its equivalent	56
2,000	109 29	133 71	30		60
12 trips or more	116 57	142 62	32	Or its equivalent	64
3,000	123 86	151 53	34		68
12 trips or more	131 14	160 44	36	Or its equivalent	72
4,000	138 43	169 36	38		76
12 trips or more	145 73	178 26	40	Or its equivalent	80
5,000	153 01	187 19	42		84
12 trips or more	160 29	196 10	44	Or its equivalent	88

And for each additional 2,000 pounds per day not more than 14 feet additional shall be paid for, at a minimum rate of \$25.50, or a maximum rate of \$31.19 per mile per annum.

In explanation of this scheme it is observed that it is not proposed to use the average weight of mails carried the whole length of a route, but to weigh the mails at the terminal points, and at intermediate points where considerable amounts of mail-matter are taken off or put on, and obtain the average from these data. This could be obtained without much labor or expense, and would meet all the requirements of the case. The statement may then be as follows, viz :

The linear feet to be used per day in each case shall be gauged according to the daily average weight of mails carried, and not exceed the following limitations, viz :

For 200 pounds, daily trips, 24 linear feet, or for the same weight and more frequent trips, 30 linear feet ; 500 pounds, daily trips, 36 linear feet, or for the same weight and more frequent trips, 40 linear feet ; 1,000 pounds, daily trips, 44 linear feet, or for the same weight and more frequent trips, 48 linear feet ; 1,500 pounds, daily trips, 52 linear feet, or for the same weight and more frequent trips, 56 linear feet ; 2,000 pounds, daily trips, 60 linear feet, or for the same weight and more frequent trips, 64 linear feet ; 3,000 pounds, daily trips, 68 linear feet, or for the same weight and more frequent trips, 72 linear feet ; 4,000 pounds, daily trips, 76 linear feet, or for the same weight and more frequent trips, 80 linear feet ; 5,000 pounds, daily trips, 84 linear feet, or for the same weight and more frequent trips, 88 linear feet ; and for each addition of 2,000 pounds per day not more than 14 linear feet shall be paid for, except upon the trunk lines carrying the great mails, not exceeding 50 per centum additional space, may, in the discretion of the Postmaster-General, be paid for.

If this scheme be not approved, and if it be found difficult to devise one, it will only show conclusively that some gauge should be prescribed

by Congress to limit the annual expenditure of so large a sum of money, rather than commit public interests of such magnitude to the fallible judgment of an executive officer.

REPORTS OF THE RAILWAY COMMISSION.

As the reports of the Railway Commission are a public record, it becomes my duty to correct several inaccuracies which they contain involving the execution of the act of March 3, 1873, under the administration of this office.

On page 8 of the minority report, and page 4 of the majority report it is stated that one road carrying an average weight of mails of 69,554 pounds per day, "making 98 trips per week, was paid \$839.30 per mile per annum; while another road, making 9 trips per week, carried 15,596 pounds, and was paid \$885.62 per mile."

A reference to adjustment case No. 24, Table F, of the Annual Report of the Postmaster-General for 1877 will show that the pay on the route carrying an average weight of mails of 15,596 pounds per day was fixed at \$349.42 per mile per annum, instead of \$885.62 per mile, as reported by the Railway Commission. And there never could have been such an adjustment of pay under the provisions of the act of March 3, 1873, as is cited by the Commission.

Another statement on page 32 of the minority report, in connection with the aggregate payments for mail service, is that "the South had more than her proportion in 1860, and less in 1876." From this declaration, it might be inferred that there had been unjust discrimination against the Southern roads in the matter of adjustment of pay for carrying the mails. Such is not the case. The same rates of pay are fixed on all roads on which the amount and character of the service are similar, without any exception.

It is true that the rates of pay in the South do not equal in amount the rates paid elsewhere, and the reason is the greatest weight of mails carried on any road south of Maryland is 6 tons per day; while on one road out of New York the weight is over 35 tons, and the weight on the long line from Omaha to San Francisco is as much as 6 tons per day. It will therefore be seen from these cases that the greatest rates of pay for carrying the mails must, as a matter of right, be paid to roads located elsewhere than in the Southern States.

The statement, then, that the South has "less than her proportion in 1876" can only be construed to mean that the roads in the Southern States carry less than the general average weight of mails carried on railroads located in other portions of the country; and reference to Table E of the Annual Report of the Postmaster-General will show this to be the case.

PRESENT SERVICE AND COST COMPARED WITH CORRESPONDING ITEMS FOR PREVIOUS YEARS, ETC.

For several years past it has been from time to time suggested that the annual expenditures for transportation of mails by railroad are more than an equivalent for the service rendered, and that some plan should be devised to reduce the cost in amount. It is not the intention to discuss this question in the present report, but to present in a succinct form the status of the present service and its cost compared with those items for previous years.

In 1854 the length of railroad routes was 14,440 miles; the annual

transportation, 15,433,389 miles; and the cost, \$1,758,610. The mails were at that time carried principally in bulk, and their weight was not known. The average rate per mile of annual transportation was 9.6 cents.

In 1867 the length of railroad routes was 34,015 miles; the annual transportation, 32,437,900 miles; and the cost, \$3,812,600. The average rate per mile of annual transportation was 11.75 cents.

During that year the mails were weighed for the first time, and the result showed an aggregate of about 30 tons of mail matter per day carried on the great lines out of New York, and this was carried with comparatively meager facilities for distribution in transit.

In 1877 the length of railroad routes was 74,546 miles; the annual transportation, 85,358,710 miles; and the cost, \$9,053,936. The average rate per mile of annual transportation was 10.5 cents.

The weight of mails per day out of New York on the great trunk lines reached about 82 tons, and they were carried in railway post-office cars of the most improved designs, and at a high rate of speed.

The limit on third-class mail-matter has been extended from twelve ounces to four pounds, almost all articles of merchandise being admitted to the mails, thereby greatly augmenting the weight of the mails, and increasing the usefulness of the postal service, especially to communities remote from railroad lines.

It will be seen that notwithstanding the great increase in the weight of mails carried, and the improved facilities provided for its distribution in transit, the rate per mile of annual transportation in 1877 is but *nine mills* greater than in 1854.

The forty millions of people in the United States, dispersed over an area of more than 3,000,000 of square miles, are served with mails by 77,000 miles of railroad.

The population now occupying this vast territory, compared with the population of the future, may be said to bear some relation to the present railroad system of the country compared with what it is destined to be.

Taking all these things into account, can the idea that the aggregate cost of railroad mail service may be reduced, or even made a *fixed* expenditure, prove to be other than a delusion?

ADJUSTMENT OF RAILWAY PAY.

I would call attention to the importance of the work performed by the division of "railway adjustment," and to the fact that the superintendent thereof now holds rank only as a fourth-class clerk, at a salary of \$1,800 per year, whereas, in my opinion, he should be recognized in the law as "superintendent of railway adjustment," at a salary of \$2,000 per year at least.

The adjustment of pay to railway companies involves the expenditure of more than \$9,000,000 each year, and the chief of the division who directs the work of adjustment has responsibilities and labors devolving upon him that are poorly compensated at present salary. I earnestly urge increased compensation.

UNIFORMS FOR EMPLOYÉS OF THE POSTAL SERVICE.

The experiment of uniforming the railway postal men has worked admirably in practice, and the little opposition to it at the outset has been replaced by universal satisfaction.

I would respectfully suggest that the Postmaster-General be author-

ized by law to designate a uniform to be worn by any or all employes of the postal service, and that a penalty be fixed for any one wearing the uniform who is not entitled to do so.

EMPLOYÉS IN CHARGE OF RAILWAY MAILS.

The present division of employes in charge of railway mails into "mail-route messengers," "route-agents," &c., is cumbersome and meaningless, and I have to recommend a simpler classification, as follows:

1st class; pay not to exceed \$800 per annum.

2d class; pay not to exceed \$900 per annum.

3d class; pay not to exceed \$1,000 per annum.

4th class; pay not to exceed \$1,200 per annum.

5th class; pay not to exceed \$1,400 per annum.

In the event of the adoption of this suggestion, the appropriation for "railway post-office clerks," "route-agents," "mail-route messengers," and "local agents" can be consolidated into one sum.

MAIL-BAGS, MAIL-CATCHERS, AND MAIL LOCKS AND KEYS.

To supply current wants of the service, there were distributed during the year ended June 30, 1878 (by 2,785 drafts on various depositories), 488,479 mail-bags of all kinds and sizes, 97,143 being locked mail-bags, chiefly for letters, and 391,336 for second and third class matter only; also 664 mail-catchers.

There were distributed directly from this division, 37,585 mail-locks and 5,578 mail-keys; also 11,200 mail-bag label-cases, 2,400 label-books, and 459 safety-key chains to supply current wants.

By reference to Table G, prepared for the appendix to your annual report, it will be seen that the total number of new mail-bags procured under contracts and put into service was 79,898, of which 7,798 were locked bags, and 72,100 were tied sacks, being a decrease of 13,902 bags, or 13.77 per centum less, compared with the last year. The number of mail-catchers purchased was 400.

The total expense of mail-bags and mail-catchers, including repairs, &c., was \$140,275.54, being a decrease of \$25,365.75, or 15.33 per centum less than the cost of the previous year.

Since the year ended June 30, 1876 (when the expense for mail-bags was \$206,517.49), a considerable reduction of that item of expense has been effected, notwithstanding the continued growth of the mail service. Several causes have concurred in producing that result, namely, improved reciprocity of mail exchanges, effected through the railway mail service, greater regularity of mail connections, favorably effected by the exceptionably mild character of the winter prevalent throughout the country; the stricter observance by postmasters generally of the regulations and instructions relating to mail-bags, especially to the equalization of exchanges and the regular and prompt return of empty bags; and the decreased necessity for new mail-bags, occasioned by increased supplies of repaired ones, afforded by a judicious and economical system of reclaiming damaged mail-bags for renewed use.

The total number of mail-bags repaired during the year ended June 30, 1878, was 344,619, the cost of which was \$38,468.22. Under the old system the same repairs would have cost \$90,230.11. Compared with the preceding year (the improved system being also then in operation), there was an increase in quantity of 16.69 per centum, and an increase also in cost of 2.88 per centum, showing, however, a *relative* decrease in

cost of 13.38 per centum; that is to say, there were 49,000 more mail-bags repaired, and the increased cost was only \$1,078.51, instead of \$5,159.87, the ratio of cost for the preceding year.

The cost of mail locks and keys was \$5,890, or \$7,585 less than the expense of the last year; there being a full supply on hand of the kind of locks used most extensively during the entire fiscal year ended June 30, 1878.

CONTRACTS FOR MAIL-BAGS, MAIL-CATCHERS, ETC.

Appended hereto is a tabular statement of the contracts in operation on the 30th of June, 1878, for mail-bags, mail-catchers, &c.; also, of one contract for mail-locks and mail-keys, which expired July 1, 1878. All other contracts in operation during the fiscal year expired January 1, 1878. The contract which expired the 1st of July last had, four years previously, been extended for another term of four years, agreeably to its own provisions and the advertisement under which the same was made; but the power to extend it again was exhausted. Hence, at this time there is no contract in operation for supplying mail locks and keys.

The supply now on hand is probably sufficient to meet the usual wants of the service, if new kinds of locks and keys shall be obtained, within a reasonable time, to displace all the old ones (as is now desirable for the service), under such new contracts as are contemplated by your advertisement dated August 15, 1878, and if in the mean time more locks and keys of the present kind shall be needed, there is every reason to believe the same may be procured of the late contractors at the price formerly paid to them.

ESTIMATES.

In the table of estimates accompanying this report the columns of "cost for 1877-'78" show the contract and adjusted cost or price of star, steamboat, and railroad service, and the yearly salaries of railway post-office clerks, route-agents, mail-route messengers, local agents, and mail-messengers employed, as appear by the books of this bureau upon the 30th of June of said years, and do not take into account the fines and deductions against contractors or the lapses in service of salaried agents for which no payments are made, all of which more or less affect the amounts finally paid, and which are accurately shown by the report of the Auditor of the Treasury for the Post-Office Department. There will consequently be an apparent discrepancy between this table and the Auditor's statement.

The aggregate estimate for 1880 for inland transportation and the items incident thereto will be found to be \$20,790,000, against an appropriation for the current year of \$18,706,673; an increase of \$2,083,327, or about 11½ per centum.

FINES AND DEDUCTIONS.

The amount of fines imposed upon contractors, and deductions made from their pay, for failures and other delinquencies for the fiscal year ended June 30, 1878, was \$99,077.08, and the amount remitted for the same period was \$16,502.78, leaving the net amount of fines and deductions \$82,574.30; being an increase on the amount of fines and deductions over last year of \$9,321.62, or 10.39 per centum, and a decrease in the amount remitted for the same period of \$8,970.54, or 35.21 per centum; making a net increase of fines and deductions of \$18,292.16, or 28.46 per centum.

TEMPORARY CONTRACTS.

I again invite your attention to the subject of temporary contracts, mentioned in my last report. The law formerly authorized the Postmaster-General, when immediate service became necessary, or a new route was established, to make a temporary contract, without advertisement, "for a period not to exceed twelve months." By section 12 of act of June 23, 1874, and section 251 act of August 11, 1876, the law was so amended as to limit all temporary contracts to six months. This change has caused much embarrassment to the service, and has made it necessary to issue two miscellaneous advertisements each year instead of one, as formerly, thus greatly increasing the labor and expense of the department without seeming to gain any advantage to the service. The extension of the limit for temporary contracts to one year, as formerly, would seem to be an improvement of the law.

I have the honor to be, very respectfully, your obedient servant,
THOS. J. BRADY,

Second Assistant Postmaster-General.

Hon. DAVID M. KEY,
Postmaster-General.

Cost of inland transportation and the items incident thereto, for the years 1877 and 1878, with the appropriation for 1879, and the estimates of the amounts necessary to be appropriated for 1880; showing the percentage of increase and decrease, with the cost, appropriation, and estimate for mail locks and keys, mail-bags and mail-bag catchers.

Object.	Cost for 1877.		Cost for 1878.		Percentum increase or decrease of 1878 as to 1877.		Appropriation for 1879.	Percentum increase or decrease of appropriation of 1879 as to cost of 1878.		Estimate for 1880.	Percentum increase or decrease as to appropriation for 1878.	
					Increase.	Decrease.		Increase.	Decrease.		Increase.	Decrease.
Inland transportation, railroad routes.....	\$9,053,936 00	\$9,566,595 00	54	.....	\$9,100,000 00	.....	44	.....	\$10,250,000 00	134	.....
Inland transportation, steamboat routes.....	666,989 00	759,463 00	134	.....	700,000 00	.....	6.97	.....	900,000 00	98.57	.....
Inland transportation, "star" routes.....	5,663,970 00	5,714,943 00	00.90	.....	5,390,673 00	.....	44	.....	5,900,000 00	9.46	.....
Railway post-office clerks.....	1,292,690 00	1,260,590 00	3.10	.....	1,325,000 00	5.10	.....	.....	1,350,000 00	1.88	.....
Route agents.....	994,540 00	1,045,980 00	54	.....	1,030,000 00	.....	1.52	.....	1,125,000 00	9.22	.....
Mail-route messengers.....	168,098 00	154,593 00	.....	44	171,000 00	10.61	.....	.....	175,000 00	3.34	.....
Local agents.....	105,530 00	117,850 00	114	.....	115,000 00	.....	24	.....	150,000 00	30.43	.....
Mail-messengers.....	659,497 00	649,387 00	.....	1.53	675,000 00	3.94	.....	.....	725,000 00	7.40	.....
Mail locks and keys.....	13,475 00	5,890 00	.....	56.29	15,000 00	1544	.....	.....	15,000 00	.....	.....
Mail-bags and mail-bag catchers.....	165,641 89	140,375 54	.....	15.33	185,000 00	29	.....	.....	200,000 00	8.10	.....
	.....	.....	.....	.....	18,706,673 00	.....	.....	.....	20,790,000 00	114	.....

NOTE.—The above estimates are based upon the contract prices and annual salaries, without reference to fines and deductions. This will explain the apparent discrepancy between this table and the Auditor's statement.

THOS. J. BRADY,
Second Assistant Postmaster-General.

EXPLANATION OF TABLES ACCOMPANYING THE REPORT OF THE SECOND ASSISTANT POSTMASTER-GENERAL.

POST-OFFICE DEPARTMENT,
OFFICE OF THE SECOND ASSISTANT POSTMASTER-GENERAL,
Washington, D. C., November —, 1878.

SIR: For a statement of the mail service for the contract year ended June 30, 1878, &c., I have the honor to refer you to the tables hereto annexed.

Table A exhibits the character of the service, the length of routes, the number of miles of transportation, and the cost thereof, at the close of the contract year.

Table B exhibits the railroad service as in operation on the 30th of June, 1878; also the cost per mile per annum in each State and Territory.

Table C exhibits the steamboat service, as in operation on the 30th of June, 1878.

Table D shows the increase and decrease of mail transportation and cost, in the several States and Territories, during the year ended June 30, 1878.

Table E shows the weight of the mails, the speed with which they are conveyed, the accommodations for mails and agents, the trips per week, and the rates of pay per mile per annum, on railroad routes in States in which the contract term expired June 30, 1878, and also in other States and Territories; the returns having been obtained with a view to the readjustment of pay, in accordance with the act of March 3, 1873, and used also in accordance with the acts of July 12, 1876, and of June 17, 1878, in the case of readjustments taking effect on and after July 1, 1876. This table is accompanied with an alphabetical index of the titles of the companies carrying the mails.

Table F shows the readjustment of the rates of pay per mile on railroad routes in States and Territories in which the contract term expired June 30, 1878, and also in other States and on certain new routes, the adjustment of the rates based on returns of the weight of the mails, the speed with which they are conveyed, the accommodations for mails and agents, and the number of trips per week, in accordance with the act of March 3, 1873, and with the acts of July 12, 1876, and of June 17, 1878, in the case of readjustments taking effect on and after July 1, 1876. This table also is accompanied with an alphabetical index of the titles of the companies carrying the mails.

Table G is a statement of the number, description, and prices of mail-bags, mail-catchers, mail locks and keys purchased, and of the expense incurred on account thereof, during the fiscal year ended June 30, 1878.

Table H is a statement of all contracts in operation on the 30th of June, 1878, for mail-bags, mail-catchers, &c. Also of one contract for mail locks and keys, which expired July 1, 1878.

Table I is a list of railway post-office lines in the United States, June 30, 1878, showing the increase in the service since June 30, 1877, also the decrease since that date.

Tables K and L, giving in detail the railway mail service in operation June 30, 1878, are inserted for the first time this year.

These tables were prepared in the office of the superintendent of railway mail service. They will be particularly valuable as a basis for computing the probable cost of the service, if the proposed law be enacted paying railroad companies for mail transportation according to space

occupied and the speed with which the mails are carried. While they may not be absolutely correct, they are so nearly so as to answer every purpose. The greatest care has been taken in their compilation to avoid errors. As a basis for comparison of the growth of the service in future they will be invaluable. If such tables were in existence from the organization of the railway mail service until the present time, some conception of the wonderful growth of the service could be had.

Very respectfully, your obedient servant,

THOS. J. BRADY,

Second Assistant Postmaster-General.

Hon. DAVID M. KEY,
Postmaster-General.

A.—Table of mail-service for the year ended June 30, 1878, as exhibited by the state of the arrangements at the close of the year authorized by the Postmaster-General.

[The entire service and pay on each route are set down to the State under which the route is numbered, though extending sometimes into other States, instead of being divided among the States in which the different portions lie.]

States and Territories.	Length of routes.	Annual transportation and cost.						Total annual trans- portation by col- lity, certainty, and security.	Total annual trans- portation by steamboat.	Total annual trans- portation by rail.	Total annual trans- portation.	Dollars.
		Celerity, certainty, and security.		By steamboat.		By railroad.						
		Miles.	Dollars.	Miles.	Dollars.	Miles.	Dollars.					
		Miles.	Dollars.	Miles.	Dollars.	Miles.	Dollars.					
Maine.....	3,438	3,551	85,058	789	2,689	1,086	135,136	1,716,637	17,898	1,204,108	3,101,373	282,963
New Hampshire.....	1,917	1,931	25,962	35	2,000	651	64,534	603,711	5,850	1,475,030	2,101,373	100,936
Vermont.....	2,346	2,346	47,539	30	3,500	838	99,147	814,177	5,850	1,665,457	2,550,634	146,376
Massachusetts.....	3,000	1,194	64,327	188	16,000	1,968	237,673	876,565	13,480	2,791,441	3,680,486	341,399
Rhode Island.....	559	189	8,007	188	16,000	1,968	237,673	876,565	13,480	2,791,441	3,680,486	45,062
Connecticut.....	1,799	789	21,968	94	5,199	1,070	183,776	414,656	38,896	2,283,936	2,698,782	210,491
New York.....	12,068	6,937	251,968	94	5,199	1,070	183,776	414,656	38,896	10,964,701	14,130,671	1,485,559
New Jersey.....	2,388	883	59,341	90	1,305	1,456	202,563	464,884	16,563	2,530,313	3,011,669	213,929
Pennsylvania.....	14,008	9,056	220,353	88	5,500	4,464	630,496	3,779,393	55,321	8,111,210	11,945,927	960,379
Delaware.....	437	179	5,305	88	5,500	4,464	630,496	3,779,393	55,321	8,111,210	11,945,927	34,963
Maryland.....	3,444	1,600	54,893	498	7,950	1,156	249,019	1,005,489	111,324	2,278,371	3,383,324	314,791
West Virginia.....	5,360	4,987	56,906	945	15,800	978	35,000	1,125,141	125,893	3,357,399	4,482,432	104,406
Virginia.....	11,816	8,293	126,731	1,198	40,000	1,606	323,861	2,549,060	9,943	2,044,140	4,593,188	401,962
North Carolina.....	10,689	8,938	109,338	351	10,003	1,408	174,116	2,724,116	98,000	1,253,474	3,076,590	269,469
South Carolina.....	4,123	3,938	36,118	50	1,261	1,157	90,319	743,116	9,943	1,166,251	1,940,142	137,612
Georgia.....	7,861	5,974	67,301	155	3,600	2,433	206,350	940,693	32,940	2,285,079	3,225,012	277,451
Florida.....	4,300	2,210	34,045	1,628	100,358	4,463	91,820	379,401	40,396	445,365	1,275,064	153,963
Alabama.....	9,761	6,850	96,295	840	11,008	2,071	153,065	1,339,500	149,674	1,117,072	2,458,574	263,265
Mississippi.....	6,682	4,553	76,374	90	9,000	1,174	90,978	939,692	91,798	874,963	1,904,363	176,452
Louisiana.....	6,296	3,633	107,379	2,074	9,000	1,174	90,978	939,692	91,798	874,963	1,904,363	242,082
Texas.....	16,405	13,650	486,735	2,074	9,000	1,174	90,978	939,692	91,798	874,963	1,904,363	242,082
Arkansas.....	10,099	7,400	180,158	2,074	9,000	1,174	90,978	939,692	91,798	874,963	1,904,363	242,082
Missouri.....	14,632	10,694	291,912	2,074	9,000	1,174	90,978	939,692	91,798	874,963	1,904,363	242,082
Illinois.....	7,745	6,411	81,663	1,005	48,800	1,461	171,537	1,574,390	436,562	1,508,330	3,082,720	313,362
Kentucky.....	8,816	6,350	83,709	1,005	48,800	1,461	171,537	1,574,390	436,562	1,508,330	3,082,720	313,362
Tennessee.....	12,667	6,513	149,017	216	17,500	3,974	307,918	1,468,370	166,670	3,694,307	5,162,777	1,267,543
Ohio.....	7,938	6,664	85,643	974	25,792	3,974	307,918	1,468,370	166,670	3,694,307	5,162,777	1,267,543
Indiana.....	11,885	4,711	136,091	974	25,792	3,974	307,918	1,468,370	166,670	3,694,307	5,162,777	1,267,543
Illinois.....	9,119	4,576	104,661	974	25,792	3,974	307,918	1,468,370	166,670	3,694,307	5,162,777	1,267,543
Michigan.....	11,870	5,908	87,783	974	25,792	3,974	307,918	1,468,370	166,670	3,694,307	5,162,777	1,267,543
Wisconsin.....	11,870	5,908	87,783	974	25,792	3,974	307,918	1,468,370	166,670	3,694,307	5,162,777	1,267,543
Iowa.....	11,870	5,908	87,783	974	25,792	3,974	307,918	1,468,370	166,670	3,694,307	5,162,777	1,267,543
Minnesota.....	7,800	5,383	87,984	974	25,792	3,974	307,918	1,468,370	166,670	3,694,307	5,162,777	1,267,543

A.—Table of mail-service for the year ended June 30, 1878, &c.—Continued.

States and Territories.	Length of routes.	Annual transportation and cost.						Total annual trans- portation by ocel- rity, certainty, and security.	Total annual trans- portation by rail- road.	Total portation.	Total annual cost.
		Celerity, certainty, and security.		By steamboat.		By railroad.					
		Miles.	Dollars.	Miles.	Dollars.	Miles.	Dollars.				
Nebraska.....	7,832	6,269	133,214	.....	.....	1,543	346,653	1,695,993	1,078,895	2,730,118	Dollars. 481,866
Kansas.....	11,889	9,101	183,144	.....	.....	2,798	269,479	2,453,590	2,125,549	4,730,139	159,623
Nevada.....	9,239	9,116	179,851	.....	.....	143	9,312	931,318	2,125,549	4,730,139	101,692
California.....	17,032	7,461	391,361	.....	.....	2,699	338,466	2,506,137	1,877,450	4,092,698	766,927
Oregon.....	4,551	4,063	104,683	.....	.....	965	37,100	2,506,137	940,349	1,600,941	160,941
Washington Territory.....	3,101	1,314	50,738	.....	.....	946	30,443	743,952	149,760	1,541,571	154,571
Idaho Territory.....	1,928	1,998	69,496	.....	.....	150	7,705	965,392	118,438	477,098	477,098
Montana Territory.....	2,177	2,177	153,158	.....	.....	.....	.....	437,698	93,338	477,098	69,496
Dakota Territory.....	3,441	3,005	137,390	.....	.....	61	4,486	990,900	38,364	990,900	153,158
Nevada.....	9,239	9,116	179,851	.....	.....	375	7,560	990,900	96,000	990,900	149,396
Wyoming Territory.....	3,869	3,869	132,298	.....	.....	.....	.....	395,616	38,364	990,900	123,896
Utah Territory.....	3,270	3,016	301,570	.....	.....	254	14,719	1,474,175	167,944	1,641,419	316,393
Colorado.....	3,462	2,980	186,861	.....	.....	468	38,073	961,758	341,483	1,303,131	292,834
Indian Territory.....	1,746	1,746	53,983	.....	.....	.....	.....	345,338	.....	345,338	53,983
New Mexico Territory.....	2,053	2,053	141,794	.....	.....	.....	.....	681,334	.....	681,334	141,794
Arizona Territory.....	2,339	2,339	134,468	.....	.....	.....	.....	455,924	.....	455,924	134,468
Total.....	301,966	296,777	5,714,943	16,069	753,463	77,130	9,566,595	61,435,692	4,639,398	92,130,395	16,034,081
Railway post-office clerks.....											1,360,590
Route agents.....											1,045,960
Mail-route messengers.....											154,593
Local agents.....											117,850
Mail-messengers.....											640,387
Aggregate.....											19,923,421

THOS. J. BRADY,
Second Assistant Postmaster-General.

B.—Railroad service as in operation on the 30th of June, 1878.

Number of route.	State and termini.	Corporate title of company carrying the mail.	Distance.	Total distance in each State.	Number of trips per week.	Annual pay.	Annual pay in each State.	Annual cost per mile on each route.	Remarks.
			<i>Miles.</i>	<i>Miles.</i>		<i>Dollars.</i>	<i>Dollars.</i>	<i>Dollars.</i>	
MAINE.									
1	Augusta to Skowhegan	Maine Central	19.31	.....	12	5,783 93	.....	338 10	
2	Newport to Dexter	do	18.78	.....	12		.....	61 80	
3	Farmington to Brunswick	do	14.9	.....	12		.....	45 00	
4	Belfast to Burnham Village	do	51	.....	9½	5,814 50	.....	81 00	
5	Portland to Bangor	do	18.7	.....	12		.....	91 00	
	do	do	34.79	.....	9	2,380 49	.....	66 70	
	do	do	55.57	.....	9	18,364 38	.....	75 60	
6	Portland to Augusta	do	72.53	.....	9½		.....	331 80	
	Branch, Brunswick to Bath	do	52.38	.....	9½	17,967 45	.....	363 70	
7	Portland to Canada Line	Grand Trunk	11	.....	18		.....	94 50	
8	Portland to Rochester, N. H.	Portland and Rochester	9.05	.....	9½	14,369 18	.....	86 40	
9	Portland to Portsmouth, N. H.	Eastern	52.68	.....	12	7,446 95	.....	141 40	
10	Portland to Lubenburgh Station, Vt.	Portland and Ogdensburg	52.56	.....	19½	13,791 74	.....	363 40	
11	Salmon Falls, N. H., to Portland, Me.	Portland and Maine	114.05	.....	12	10,573 57	.....	92 71	
12	Bangor to Vanceborough	Consolidated European and North American	45	.....	12	7,749 00	.....	173 90	
	do	do	113.93	.....	6	18,035 11	.....	158 30	
13	Bangor to Bucksport	do	19.89	.....	12	1,684 64	.....	84 70	
14	Old Town to Blanchard	Bangor and Piscataquis	63.8	.....	6	3,847 14	.....	60 30	
15	Woolwich to Rockland	Knox and Lincoln	48.86	.....	12	4,534 20	.....	92 80	
16	Houlton to New Brunswick Line ..	New Brunswick and Canada	3.93	.....	6	180 38	.....	45 90	
17	Calais to Princeton	Saint Croix and Penobscot	21.29	.....	6	766 44	.....	36 00	
18	West Waterville to North Anson ..	Somerset	25.7	.....	6	1,995 28	.....	50 40	
			1,065.61	.....		135,136 22	.....	
NEW HAMPSHIRE.									
1001	Concord to Nashua	Concord	36.28	.....	37½	8,331 70	.....	229 65	
1002	Concord to Portsmouth	do	59.16	.....	12	3,460 86	.....	56 50	
1003	Manchester to North Weare	do	19.95	.....	12	897 75	.....	45 00	
1004	Hooksett to Pittsfield	do	20.35	.....	6	934 06	.....	45 90	
1005	Concord to Wells River, Vt.	Boston, Concord and Montreal ..	51	.....	13½	11,593 77	.....	127 90	
1006	Groveton to Wells River, Vt.	do	43.01	.....	12		.....	117 90	
1007	Wing Road to Fayman House	do	54.12	.....	12	4,383 72	.....	81 00	
			13.5	.....	6	6,607 50	.....	45 00	

A.—Table of mail-service for the year ended June 30, 1878, &c.—Continued.

States and Territories.	Length of routes.	Annual transportation and cost.						Total annual trans- portation by celer- ity, certainty, and security.	Total annual trans- portation by steamboat.	Total annual trans- portation by rail- road.	Total portation.	Dollars.
		Celerity, certainty, and security.		By steamboat.		By railroad.						
		Miles.	Dollars.	Miles.	Dollars.	Miles.	Dollars.					
Nebraska.....	7,833	6,389	133,914	.....	.....	1,543	248,653	1,686,993	.....	1,078,695	2,738,118	481,986
Kansas.....	11,699	9,101	183,144	.....	.....	2,798	269,479	2,482,580	.....	2,135,549	4,578,139	482,923
Nevada.....	2,339	2,116	179,851	.....	.....	1,143	9,312	931,318	.....	89,344	1,012,692	189,163
California.....	11,032	7,461	391,361	.....	.....	2,609	338,466	5,061,137	.....	1,877,489	4,632,898	766,927
Oregon.....	4,551	4,063	104,693	.....	.....	248	30,443	743,958	.....	149,780	1,941,583	160,941
Washington Territory.....	3,101	1,314	50,783	.....	.....	150	7,705	985,392	.....	93,338	1,047,159	197,977
Idaho Territory.....	1,926	1,928	69,496	.....	.....	.....	.....	437,698	.....	.....	477,698	69,496
Montana Territory.....	2,177	1,357	153,156	.....	.....	.....	.....	788,978	.....	.....	868,978	153,156
Dakota Territory.....	3,441	3,065	137,390	.....	7,580	61	4,486	993,594	.....	38,364	993,594	149,398
Wyoming Territory.....	2,669	869	182,266	.....	.....	.....	.....	365,816	.....	.....	365,816	123,896
Utah Territory.....	3,016	3,016	301,570	.....	.....	254	14,719	1,474,175	.....	167,944	1,641,419	316,323
Colorado.....	3,462	2,960	186,861	.....	.....	463	36,073	961,786	.....	241,453	1,303,181	222,834
Indian Territory.....	1,746	1,746	53,963	.....	.....	.....	.....	345,332	.....	.....	345,332	53,963
New Mexico Territory.....	2,053	2,053	141,794	.....	.....	.....	.....	681,334	.....	.....	681,334	141,794
Arizona Territory.....	2,329	2,329	134,468	.....	.....	.....	.....	453,234	.....	.....	453,234	134,468
Total.....	301,966	906,777	5,714,943	18,069	752,483	77,190	9,566,595	61,435,692	4,632,266	92,190,395	158,165,375	16,034,021
Railway post-office clerks.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,260,590
Route agents.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,043,560
Mail-route messengers.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	154,363
Local agents.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	117,850
Mail-messengers.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	646,367
Aggregate.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	19,308,431

THOS. J. BRADY,
Second Assistant Postmaster-General.

B.—Railroad service as in operation on the 30th of June, 1878.

Number of route.	State and terminal.	Corporate title of company carrying the mail.	Distance.	Total distance in each State.	Number of trips per week.	Annual pay.	Annual pay in each State.	Annual cost per mile on each route.	Remarks.
	MAINE.		Miles.	Miles.		Dollars.	Dollars.	Dollars.	
1	Augusta to Skowhegan	Maine Central	19.21	19.21	12	5,723 93	.....	238 10	
2	Newport to Dexter	do	18.76	18.76	12	670 50	.....	61 20	
3	Farmington to Brunswick	do	14.9	14.9	12	5,814 50	.....	45 00	
4	Belfast to Burnham Village	do	18.5	18.5	12	9,390 40	.....	91 00	
5	Portland to Bangor	do	34.79	34.79	9	18,364 38	.....	66 70	
6	Portland to Augusta	do	72.53	72.53	9	17,967 45	.....	75 60	
7	Branch, Brunswick to Bath	do	55.57	55.57	9	17,967 45	.....	231 80	
8	Portland to Canada Line	Grand Trunk	11	11	18	14,369 18	.....	263 70	
9	Portland to Rochester	do	9.05	9.05	18	7,448 95	.....	94 50	
10	Portland to Portsmouth, N. H.	Eastern	52.68	52.68	12	13,791 74	.....	141 40	
11	Portland to Lunenburg Station, Vt.	Portland and Ogdensburg	52.56	52.56	12	10,573 57	.....	993 40	
12	Salmon Falls, N. H. to Portland, Me	Boston and Maine	114.05	114.05	12	7,749 00	.....	92 71	
13	Bangor to Vanceborough	Consolidated European and North American	113.93	113.93	6	18,035 11	.....	173 20	
14	Bangor to Bucksport	do	19.80	19.80	12	1,694 64	.....	158 30	
15	Woolwich to Rockland	Bangor and Piscataway	63.8	63.8	12	3,847 14	.....	84 70	
16	Houlton to New Brunswick Line	Knox and Lincoln	48.66	48.66	12	4,534 30	.....	60 30	
17	Calais to Princeton	New Brunswick and Canada	3.93	3.93	12	180 38	.....	92 80	
18	West Waterville to North Anson	Saint Croix and Penobscot	21.59	21.59	6	766 44	.....	45 90	
	NEW HAMPSHIRE.	Somerset	25.7	25.7	6	1,295 88	.....	36 00	
			1,085.61	1,085.61		135,136 92	.....	50 40	
1001	Concord to Nashua	Concord	36.28	36.28	37 1/2	8,331 70	.....	239 65	
1002	Concord to Portsmouth	do	59.16	59.16	12	3,460 86	.....	58 50	
1003	Manchester to North Weare	do	19.65	19.65	12	697 75	.....	45 00	
1004	Hookest to Pittsfield	do	50.35	50.35	6	934 06	.....	45 90	
1005	Concord to Wells River, Vt.	Boston, Concord and Montreal	43.01	43.01	12 1/2	11,593 77	.....	197 90	
1006	Groveton to Wells River, Vt.	do	54.19	54.19	12	4,383 73	.....	117 90	
1007	Wing Road to Fabyan House	do	13.5	13.5	6	607 50	.....	81 00	

B.—Railroad service as in operation on the 30th of June, 1878—Continued.

Number of route.	State and termini.	Corporate title of company carrying the mail.	Distance.	Total distance in each State.	Number of trips per week.	Annual pay.	Annual pay in each State.	Annual cost per mile on each route.	Remarks.
			Miles.	Miles.		Dollars.	Dollars.	Dollars.	
	NEW HAMPSHIRE—Continued.								
1008	Concord to White River Junction, Vt.	Northern	66.64	18	13,379 37	183 35	183 35	45 00	
1009	Branch, Franklin to Bristol	Concord and Claremont	12 11	6	3,044 48	53 60	53 60	50 90	
1010	Concord to Claremont Junction	do	54.8	12	753 50	66 60	66 60	145 00	
1011	Concord Village to Hillsborough Bridge.	do	15	6	1,770 22	57 70	57 70	77 40	
1012	Nashua to Greenfield	Boston and Lowell and Nashua	94.58	18	7,183 00	45 00	45 00	67 50	
1013	Nashua to Rochester	Nashua and Rochester	49.4	6	2,633 83	53 60	53 60	71 10	
1014	Dover to Alton Bay	Boston and Maine	24.42	12	5,303 91	45 00	45 00	67 50	
1015	Brook & Cymond, Me., to North Conway, N. H.	Eastern	71.11	6	544 95	64,533 62	64,533 62	179 60	
1016	Wolfeborough Junction to Wolfeborough.	do	12 11	6	529 00	139 60	139 60	146 50	
	Portsmouth to Dover	do	11.6	6	651 14	22,964 89	22,964 89	150 90	
	VERMONT.							139 40	
2001	Burlington to House's Point, N. Y.	Central Vermont	24.5	19	8,631 64	163 90	163 90	65 70	
2002	Branch, Montpelier to Barre	do	32.65	19	23,146 74	45 00	45 00	67 50	
2003	Bellows Falls to Burlington	do	97.2	18	18,146 74	150 90	150 90	139 40	
2004	Bellows Falls to Windsor	do	22.87	16	4,196 59	163 90	163 90	65 70	
2005	Brattleborough to Bellows Falls	Vermont Valley	6.76	18	4,008 99	49 50	49 50	67 50	
2006	Saint Albans to Canada Line	Central Vermont	33.34	18	1,193 47	704 00	704 00	67 50	
2007	Saint Albans to Richmond	do	17.1	6	2,156 63	133 17	133 17	71 10	
2008	Leicester Junction to Ticonderoga Station, N. Y.	do	23.47	6	8,399 75	90 90	90 90	67 50	
2009	Richford to Newport	Missequol and Clyde Rivers	31.95	15	13,221 33	133 17	133 17	71 10	
2010	White River Junction to Derby Line.	Connecticut and Passumpsic Rivers and Massachusetts Valley	114.3	6	3,595 10	67 50	67 50	71 10	
2011	Lenoxburgh Junction to Swanton	do	118.14	6	3,595 10	67 50	67 50	71 10	
2012	Wells River to Montpelier	Montpelier and Wells River	38.78	6	3,595 10	67 50	67 50	71 10	

3013	White River Junction to Woodstock	14.41	827.58	19	648.45	45.00
3014	Burlington to Cambridge Junction.	34.97		6	1,668.06	47.70
3015	Burlington to Burlington	57.16		15		107.10
	Brasch, North Burlington to State Line.	1.85		15	6,339.94	117.90

B.—Railroad service as in operation on the 30th of June, 1878—Continued.

Number of route.	State and terminal.	Corporate title of company carrying the mail.	Distance. Miles.	Total distance in each State. Miles.	Number of trips per week.	Annual pay. Dollars.	Annual pay in each State. Dollars.	Annual cost per mile on each route.	Remarks.
MASSACHUSETTS—Continued.									
3034	Boston to Southbridge	New York and New England	53	53	21	9,294 65	.....	Dollars. 160 30	
3035	Boston to Providence, R. I.	Boston and Providence	17 75	17 75	21	10,318 36	.....	45 00	
3036	Boston to Dedham	do	44 19	44 19	18	470 95	.....	523 50	
3037	Quincy Depot to Southbridge	do	10 45	10 45	18	186 75	.....	45 00	
3038	Boston to Plymouth	do	4 15	4 15	24	5,006 38	.....	130 50	
3039	Boston, Atlantic to West Quincy	Old Colony	37 87	37 87	12	6,385 10	.....	45 00	
3040	South Braintree Junction to New- port, R. I.	do	3 17	3 17	13	.....	.....	104 40	
3040	South Abington to Bridgewater	do	7 07	7 07	12	318 15	.....	45 00	
3041	Middleborough to Hyannis	do	45 59	45 59	12	6,900 90	.....	136 90	
3042	Yarmouth Port to Provincetown	do	31 07	31 07	12	5,146 95	.....	117 10	
3043	Taunton to Middleborough	do	14 08	14 08	12	596 95	.....	107 10	
3044	South Braintree Junction to Fall River	do	11 71	11 71	24	1,793 59	.....	45 00	
3045	Colabasset Narrows to Wood's Holl Junction	do	17 93	17 93	6	935 43	.....	53 90	
3046	Framingham to Pratt's Junction	Boston, Clinton, Fitchburgh and New Bedford	29 74	29 74	20	2,301 87	.....	77 40	
3047	Sterling Junction to Fitchburgh	do	14 15	14 15	29	1,018 80	.....	73 00	
3048	Mansfield to South Framingham	do	92 02	92 02	12	1,706 55	.....	77 50	
3049	South Framingham to Lowell	do	59 44	59 44	12	2,119 68	.....	73 00	
3050	Fairhaven to West Wareham	do	15 06	15 06	13	705 60	.....	45 00	
3051	New Bedford to Mansfield Junction	do	91 53	91 53	33	2,748 19	.....	78 90	
3052	Taunton to Attleborough	do	10 83	10 83	33	400 32	.....	97 90	
3053	New Bedford to Fall River	Fall River	11 13	11 13	18	675 00	.....	36 00	
3054	Fitchburgh to Bellows Falls, Vt.	Cheshire	15	15	20	8,145 90	.....	45 00	
3055	South Vernon Junction, Vt., to Keene, N. H.	Connecticut River	64 45	64 45	18	1,393 34	.....	136 00	
3056	Worcester to Windenden	Boston, Barre and Gardner	24 19	24 19	12	3,050 80	.....	57 60	
3057	Windsor Junction to Peterborough, N. H.	do	38 04	38 04	12	974 01	.....	90 90	
3058	Milford to Bellingham	Providence and Worcester	16 37	16 37	12	184 50	.....	59 50	
3059	Milford to Ashland	do	4 1	4 1	13	540 90	.....	45 00	
3060			12 02	12 02	13			45 00	

3061	Palmer to Miller's Falls.....	Central Vermont	34.95	12	2,494.94	71.10
3062	Miller's Falls to Brattleborough, Vt.....	do	21.38	18	3,251.89	152.10
3063	Lawrence to Manchester, N. H.....	Manchester and Lawrence	37.06	18	3,607.09	133.30
3064	Brattleboro Depot to Colchester	Old Colony	11.61	18	689.63	59.40
3065	Colchester to South Duxbury	do	17.63	6	783.35	45.00
3066	Worcester to Nashua, N. H.....	Worcester and Nashua	46.54	18	7,503.94	161.30
3067	Springfield to South Vernon { Junction, Vt.....	Connecticut River	2.30	224	10,012.42	103.00
3068	Springfield to Athol.....	do	50.46	6	2,893.70	58.50
3069	Holyoke to Westfield.....	Springfield, Athol and North- eastern	48.27	6	2,893.70	58.50
3070	Abburnham Depot to Aaburn- ham.....	New Haven and Northampton	10.53	18	579.15	55.00
3072	Boston to Waltham	Aaburnham	2.89	18	130.05	45.00
		Fitchburg	10.09	6	490.50	45.00
		do	1,866.23		373,671.63	Pay estimated.
RHODE ISLAND.						
4001	Providence to Worcester, Mass.....	Providence and Worcester	44.17	24	4,456.75	100.80
4002	Providence to Groton Conn.....	New York, Providence and Boston	62.57	314	13,331.15	212.90
4003	Wickford Landing to Wickford Junction.....	Newport and Wickford Railroad and Steamboat Company	3.4	154	174.42	51.30
4004	Providence to Bristol.....	Providence, Warren and Bristol	15.75	18	978.07	68.10
4005	Warren to Fall River, Mass.....	Fall River, Warren and Bristol	9.99	6	476.52	47.70
4006	Providence to Passaic	Providence and Springfield	23.43	12	1,054.35	45.00
4007	Kingston Depot to Narragansett Pier.....	Narragansett and Springfield	9.14	15	444.20	48.60
4008	River Point to Hope.....	Pawtuxet Valley	3.1	6	139.50	45.00
		do	171.55		21,044.96	Pay estimated.
CONNECTICUT.						
5001	Norwich to Worcester, Mass.....	New York and New England, leases	59.65	18	5,153.76	86.40
5002	East Thompson to Willimantic.....	New York and New England	33.31	21	5,413.23	163.00
5003	Middletown to Berlin Depot.....	New York, New Haven and Hart- ford	11.15	18	531.85	47.70
5004	New Haven to New London { New York, N. Y., to Spring- field.....	do	51.71	31	13,470.45	290.50
5005	Branch, Windsor Locks to Suff- ield.....	do	73.23	224	757.70	757.70
5007	Waterbury to Providence, R. I.....	do	62.36	224	90,498.80	558.00
5008	Vernon Depot to Rockville.....	Hartford, Providence and Fitchburg	4.79	19	9,958.14	81.00
5009	New London to Palmer, Mass.....	do	192.94	164	204.30	45.00
	New Haven to Williamburgh, { Branch, Farmington to New Haven.....	Central Vermont	65.27	21	4,758.18	79.90
5010	Branch, Farmington to New Haven.....	do	85.82	18	11,815.52	127.80
	Hartford to Winsted.....	New Haven and Northampton....	14.32	18	58.60	58.60
5011	Bridgeport to Winsted.....	Naugatuck	62.28	12	99.90	99.90
	Branch, Waterbury to Water- bury town.....	do	6.15	12	6,498.59	45.00

B.—Railroad service as in operation on the 30th of June, 1878—Continued.

Number of route.	State and termini.	Corporate title of company carrying the mail.	Distance. Miles.	Total distance in each State.	Number of trips per week.	Annual pay. Dollars.	Annual pay in each State. Dollars.	Annual cost per mile on each route.	Remarks.
	CONNECTICUT—Continued.		Miles.	Miles.		Dollars.	Dollars.	Dollars.	
5012	Bridgeport to Pittsfield, Mass., Branch, Van Dusenville to State Line. Branch, Danbury to Brookfield Junction.	Housatonic	110.55 11.05	121.60	12 6	11,636 76		98 20 45 00	
5013	South Norwalk to Danbury Branch, Branchville to Ridge- field.	Danbury and Norwalk	6.30 23.65 4.34	34.29	18 17 14			45 00 83 70 45 00	
5014	Branch, Bethel to Hawleyville. New Haven to Willimantic.		6.28 54.14	60.42	6	8,234 69		45 00	
5015	Hartford to Saybrook Point.	Boston and New York Air Line.	44.15	44.15	164	2,980 12		153 10	
5016	Hartford to Springfield, Mass.	Connecticut Valley	31.67	31.67	12	2,080 71		67 50	
5017	New Haven to Ansonia, Mass.	Connecticut Central	13.43	13.43	6	748 83		65 70	
5018	Hartford to Millerton, N. Y.	New Haven and Derby	69.53	69.53	13	5,671 32		55 90	
5019	Litchfield to Hawleyville.	Connecticut Western	32.78	32.78	15	1,475 10		81 10	
5020	Turnersville to Colchester.	Shepaug	4.19	4.19	94	1,186 55		45 00	
		Boston and New York Air Line.		1,069 87	6		153,776 23	45 00	Pay estimated.
	NEW YORK.								
6001	New York to Dunkirk.	Erie	338	338	314	187,066 10		287 90	
6002	Suffern to Piermont.	do	18 7	18 7	314	810 00		347 90	
6003	Buffalo to Suspension Bridge.	do	55.94	55.94	64	1,167 30		45 00	
6004	Branch, Van's Gate to Junction with main stem.	do	19.75	19.75	9	1,744 65		55 80	
6005	Rochester to Avon.	do	18.75	18.75	204			50 40	
6006	Avon to Danville.	do	18	18	53	1,344 60		74 70	
6007	Attica to Corning.	do	30.73	30.73	15	1,906 33		63 10	
6008	Buffalo to Hornsleville.	do	111	111	314	10,189 80		91 80	
6009	Goshen to Monticouey.	do	91	91	204	14,086 80		154 80	
6010	Goshen to Plac Island.	do	10.25	10.25	9	581 17		56 70	
6011	New York to Troy.	do	11	11	13	485 00		45 00	
	New York Central and Hudson River.		144	144	554	133,876 60		923 70	
6012	Troy to Schenectady.	do	6	6	23	2,356 90		107 10	

R.—Railroad service as in operation on the 30th of June, 1878—Continued.

Number of route	State and termini.	Corporate title of company carrying the mail.	Distance. Miles.	Total distance in each State. Miles.	Number of trips per week.	Annual pay. Dollars.	Annual pay in each State. Dollars.	Annual cost per mile on each route.	Remarks.
NEW YORK—Continued.									
6048	{ Oswego to Middletown } { Branch, Summitville Junction } to Ellenville.	New York and Oswego Midland	{ 250.2 8 }	.....	6 {	13,870 80	.....	{ 54 00 43 00 }	
6049	Norwich to Cortland Village	do	49.21	.....	6	2,303 02	.....	46 80	
6050	Watton to Delhi	do	16	.....	6	730 00	.....	45 00	
6051	Clinton to Rome	Rome and Clinton	13.75	.....	12	618 75	.....	45 00	
			184.5	.....	36 {		.....	567 10	
			93.7	.....	36 {		.....	897 10	
6052	Buffalo to Chicago, Ill.	Lake Shore and Michigan Southern	{ 79.3 8.5 }	.....	36 {	350,941 93	.....	376 70	
			143	.....	36 {		.....	254 80	
			101	.....	36 {		.....	151 10	
6053	Rouse's Point to Ogdensburgh	Ogdensburgh and Lake Champlain	119	.....	9	10,067 40	.....	84 60	
6054	Chatham Village to Bennington, Vt.	Harlem Extension Railroad South Coal Transportation Company.	57.8	.....	6	5,358 06	.....	92 70	Pay estimated at old rate.
6055	Schoharie to Middleburgh	Schoharie Junction to Schoharie.	5.5	.....	18	247 50	.....	45 00	
6056	Utica to Smith Valley Station	Utica, Clinton and Binghamton	4.38	.....	18	308 92	.....	47 70	
6057	Buffalo to Emporium, Pa.	Buffalo New York and Philadelphia	31.4	.....	12	1,840 04	.....	58 00	
6058	Schenectady Junction to Skaneateles.	Skaneateles	122.51	.....	6	8,448 08	.....	68 40	
			5.5	.....	18	247 50	.....	45 00	
6059	Chester to Warwick	Warwick Valley	11	.....	12	495 00	.....	45 00	
6060	Canandaigua to Elmira	Northern Central	68.5	.....	18	6,843 15	.....	29 80	
6061	Syracuse to Oswego	Oswego and Syracuse	35.5	.....	18	3,195 00	.....	90 00	
6062	Syracuse to Binghamton	Syracuse, Binghamton and New York.	80	.....	12	6,768 00	.....	84 00	
6063	Rouse's Point to Canada Line	Champlain and Saint Lawrence	2.25	.....	13	143 77	.....	63 90	
6064	{ Troy to North Adams, Mass } { Branch, North Hoosick June- } then to State Line.	Troy and Boston	{ 50 3.5 }	.....	30 {	10,865 00	.....	{ 212 35 45 00 }	
6065	Staten Island	Staten Island and Albany	13	.....	12	555 00	.....	45 00	
6066	Bedford to Chatham Village	Silver Lake	17.25	.....	12	776 25	.....	45 00	
6067	East Greenbush to Perry	Syracuse, Chenango and New York.	6.53	.....	12	394 75	.....	49 50	
6068	Syracuse to Eastville	Chenango and New York.	80	.....	12 {	3,109 36	.....	49 50	
			24.47	.....	6	2,910 94	.....	63 00	
6069	Ithaca to Sayre	Geneva, Ithaca and Sayre	24.6	.....				

6073	Route to Stamford	Utter and Delaware	72.3	6	3,058 90	54 00
6074	Ithaca to Cortland Village	Utica, Ithaca and Elmira	93	6	1,283 40	55 40
6075	Horseheads to Ithaca	do	48.5	6	2,286 15	45 90
6076	Freeville to Scipio	do	98.92	6	1,298 90	63 00
6077	Ithaca to Geneva	Geneva, Ithaca and Sayre	40.25	6	2,535 75	43 00
6078	Port Jervis to Monticello	Monticello and Port Jervis	24	6	1,101 60	45 90
6079	Poughkeepsie to State Line	Poughkeepsie, Hartford and Erie	43.15	6	1,941 75	45 00
6080	Cannata to Cazenovia	Cazenovia, De Ruyter and Canasota	15	12	675 00	45 00
6081	Fonda to Gloversville	Fonda, Johnstown and Gloversville	10	15	765 00	76 50
6082	Johnstown to Greenwich	Greenwich and Johnstown	14	12	640 00	45 00
6083	Montgomery to Rondout	Wallkill Valley	33.46	6	1,776 72	53 10
6084	Sayre to Fair Haven	Southern Central	131	6	9,583 20	79 20
6085	Newburgh to Millerton	Newburgh, Dutchess and Connecticut	56.5	6	3,253 50	54 00
6086	Cooperstown to Cooperstown Junction	Cooperstown and Susquehanna Valley	4.5	6	777 60	45 00
6087	Utica to Watertown	Utica and Black River	92.22	12	6,639 84	72 00
6088	Carthage to Morrisstown	do	50.08	12	3,796 14	61 20
6089	Cayuga to Ithaca	Cayuga Southern	38.05	9	1,986 21	52 20
6090	Sodus Point to Gorham Station	Ontario Southern	34	34	1,330 00	45 00
6091	Buffalo to Jamestown	Buffalo and Jamestown	71.09	12	4,805 66	67 00
6092	Middletown to Pine Bush	Middletown and Crawford	13.5	6	607 50	45 00
6093	Long Island City to Babylon	Southern Railroad Company of Long Island	37.06	12	2,002 32	54 00
6094	Long Island City to Patchogue, Branch, Flushing to Whitestone	Flushing, North Shore and Central	53.46	11	2,849 00	45 00
6095	Saratoga Springs to North Crook	Adirondack	57.96	6	4,068 79	70 20
6096	Rath to Hammondsport	Rath and Hammondsport	9.4	18	423 00	45 00
6097	Rhinecliff to Boston Corner	Rhinebeck and Connecticut	35.2	6	1,564 00	45 00
6098	Gloversville to Northville	Gloversville and Northville	17.37	12	1,252 73	32 00
6099	Crown Point to Hammondville	Crown Point Iron Company	11.82	6	425 52	76 00
6100	Valley Stream to Oceans	Long Island	8.5	6	341 25	40 50
6101	Silvery Plains to New Berlin	New York and Oswego Midland	24.74	6	1,117 80	45 00
6102	Rochester to Gainesville	Rochester and State Line	54.88	6	2,744 00	50 00
6103	Corning to Geneva	Fall Brook Coal Company	62.41	6	2,808 45	45 00
			5,963.23		1,244,391.5	
7061	New York, N. Y. to Easton, Pa.	Central Railroad Company of New Jersey	74	12	11,196 20	151 30
7062	Somerville to Flemington	do	16.06	6	650 43	40 50
7063	Elizabethport to Sea Plain	do	47.9	12	2,974 50	62 10

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B.—Railroad service as in operation on the 30th of June, 1878—Continued.

Number of route.	State and termini.	Corporate title of company carrying the mail.	Distance. Miles.	Total distance in each State. Miles.	Number of trips per week.	Annual pay. Dollars.	Annual pay in each State. Dollars.	Annual cost per mile on each route.	Remarks.
NEW JERSEY—Continued.									
7004	New York, N. Y., to West Philadelphia, Pa. Branch, Princeton Junction to Princeton. Branch, Princeton Junction to Kensington Station. Camden to Monmouth Junction Branch, Bordentown to Trenton Branch, Jamesburgh to South Amboy.	Pennsylvania..... .....do.....do.....do.....do.....do	90 3.2 2.95 53.56 7 14.95	..... ..... ..... ..... ..... .....	98 12 18 304 18 9	113,597.35	..... ..... ..... ..... ..... .....	1,957.00 49.50 81.00 71.10 45.60 40.50	
7005	Camden to Hightstown.....	do	51.75	.....	174	3,306.82	.....	63.90	
7006	Burlington to Medford.....	do	13.5	.....	15	607.50	.....	45.00	
7008	Trenton to intersection with Delaware Railroad. aware, Lackawanna and West.	do	68.7	.....	134	5,411.04	.....	79.30	
7009	Lambertville to Flemington.....	do	12.13	.....	12	545.85	.....	45.00	
7010	Greensburgh Station to New Brunswick.	do	22.13	.....	13	1,179.76	.....	40.50	
7011	Rocky Hill to Monmouth Junction	do	8	.....	12	360.00	.....	45.00	
7012	Kinkora to Lewistown.....	do	10.81	.....	15	486.45	.....	45.00	
7013	Hoboken to Easton, Pa.....	Morris and Essex.....	84.24	.....	144	11,456.64	.....	136.00	
7014	Dover to Chester.....	do	10	.....	9	450.00	.....	45.00	
7015	Camden to Atlantic City.....	Camden and Atlantic.....	60	.....	.....	3,942.00	.....	65.70	
7016	Egg Harbor City to May's Landing	do	7.43	.....	12	334.35	.....	45.00	
7017	Jersey City to Nyack, N. Y.....	Northern Railroad Company of New Jersey.	28.71	.....	6	1,446.98	.....	50.40	
7021	Elmer to Salem.....	West Jersey.....	16.8	.....	6	791.82	.....	47.70	
7022	Woodbury to Swedesborough.....	do	11	.....	6	405.00	.....	45.00	
7023	Jamesburgh to Sea Girt.....	Freehold, Jamesburgh and Agricultural.	27.7	.....	12	1,421.01	.....	51.30	
7024	Jersey City to Stony Point, N. Y.....	New Jersey and New York.....	42.81	.....	12	1,986.45	.....	45.00	
7025	Waterloo to Franklin Furnace. Branch, La Fayette Junction to Branchville.	do Sussex.....	{ 11.76 18.24 16.24	{ 19 9 9	{ 1,557.16	{ 45.00 46.40 45.00	12 trips a week for 8 months; 19 trips a week for 4 months.

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PENNsylvania.

B.—Railroad service as in operation on the 30th of June, 1878—Continued.

Number of route.	State and termini.	Corporate title of company carrying the mail.	Distance. Miles.	Total distance in each State. Miles.	Number of trips per week.	Annual pay. Dollars.	Annual pay in each State. Dollars.	Annual cost per mile on each route.	Remarks.
NEW JERSEY—Continued.									
7004	New York, N. Y., to West Philadelphia, Pa. Branch, Princeton Junction to Princeton. Branch, Frankford Junction to Camden to Monmouth Junction Branch, Bordentown to Trenton Branch, Jamesburgh to South Amboy.	Pennsylvania.	90 3.2 2.95 53.56 7 14.95	90 3.2 2.95 53.56 7 14.95	98 12 18 204 16 9	113,537 35		Dollars. 11,457 00 49 50 81 00 71 10 48 00 40 50	
7005	Camden to Hightstown Burlington to Medford. Trenton to intersection with Delaware, Lackawanna and Western Railroad.	do	51.75 13.5 68.7	51.75 13.5 68.7	17 15 134	3,308 82 607 50 5,441 04		63 90 45 00 79 90	
7006	Lambertville to Flemington	do	12.13	12.13	12	545 85		45 00	
7010	Greensburgh Station to New Brunswick.	do	20.13	20.13	13	1,179 76		40 50	
7011	Rocky Hill to Monmouth Junction	do	8	8	12	360 00		45 00	
7012	Kinkora to Lewistown.	do	10.81	10.81	15	440 45		45 00	
7013	Hoboken to Easton, Pa.	Morris and Essex.	84.24	84.24	144	11,436 64		136 00	
7014	Dover to Chester	do	10	10	9	450 00		45 00	
7015	Camden to Atlantic City.	Camden and Atlantic	60	60		3,942 00		65 70	
7016	Egg Harbor City to May's Landing	do	7.43	7.43	12	334 35		45 00	
7017	Jersey City to Nyack, N. Y.	Northern Railroad Company of New Jersey.	28.71	28.71	6	1,446 98		50 40	
7021	Elmer to Salem	West Jersey.	16.8	16.8	6	791 82		47 70	
7022	Woodbury to Swedesborough	do	11	495 00	6	495 00		45 00	
7023	Jamesburgh to Sea Girt	Freehold, Jamesburgh and Agricultural.	27.7	27.7	12	1,431 01		51 30	
7024	Jersey City to Stony Point, N. Y.	New Jersey and New York.	42.81	42.81	12	1,986 45		45 00	
7025	Waterloo to Franklin Furnace. Branch, La Fayette Junction to Branchville.	do	11.76 13 6.24	11.76 13 6.24	12 9 9	1,557 16		45 00 46 80 45 00	12 trips a week for 8 months; 19 trips a week for 4 months.

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B.—Railroad service as in operation on the 30th of June, 1878—Continued.

Number of route.	State and termini.	Corporate title of company carrying the mail.	Distance.	Total distance in each State.	Number of trips per week.	Annual pay.	Annual pay in each State.	Annual cost per mile on each route.	Remarks.
PENNSYLVANIA—Continued.									
8016	{ Penn Haven Junction to Tom-hicken. Branch, Lumber Yard to Eber-ville. Branch, Tunnel to Eckley. Scranton to Northumberland.....	Lehigh Valley.....	24.1	114	2,150 28	73 80	
8017	Scranton to Carbondale.....		6.23	.....	15		.....	45 00
8018	Scranton to Carbondale.....		2.23	.....	6		.....	45 00
8019	Binghamton, N. Y., to New Hamp-ton, N. J.		80	214		7,126 00	.....		89 10
8020	{ Elmira, N. Y., to Blossburgh, Pa. Branch, Tioga Junction to Law-rencaville. Branch, Blossburgh to Arnot..... Branch, Blossburgh to Morris Run.	Delaware, Lackawanna and West-ern. Delaware and Hudson Canal Com-pany. Delaware, Lackawanna and West-ern.	17.6	12	1,029 60	58 50	
	Williamsport to Elmira, N. Y.		144.5	.....	13	14,305 50	.....	99 00
	Sunbury to Erie.....		45.5	.....	13	.....	60 30	
	Sunbury to Mount Carmel.....		3.83	.....	12	3,228 60	.....	45 00
8021	Alton to Carrollton.....	Erie	4.00	6	45 00	
8022	Irvine to Corry.....	Pittsburgh, Titusville and Buffalo	70.17	.....	18	7,766 57	.....	98 10
8023	Scranton to Leaman Place.....	T. & H. Baumgartner.....	39.82	.....	134	27,871 60	.....	189 70
8024	Lancaster to Middletown.....	Pennsylvania.....	96.36	.....	13	1,186 20	.....	81 80
8025	Harrisburgh to Auburn.....	Philadelphia and Reading.....	94.79	14	1,115 55	45 00	
8026	New Castle to Homewood.....	Pittsburgh, Fort Wayne and Chi-cago.	82	.....	14	5,984 00	.....	63 00
8027	Harrisburgh to Martinsburgh, W. Va.	Cumberland Valley.....	5.25	.....	6	2 6 25	.....	45 00
8028	Columbia to Sinking Spring.....	Reading and Columbia.....	31.5	.....	164	1,956 15	.....	62 10
8029	Branch, Junction to Quarryville.....	Pennsylvania.....	58.76	14	2,044 30	45 00	Pay estimated on 7.21 miles.
8030	Branch, Junction to Frederick, Md.	Hanover to Frederick.....	15.2	.....	12	1,867 84	.....	134 20
8031	Branch, Junction to East Berlin.....	Hanover Branch.....	94.07	.....	18	7,535 00	.....	80 10
8032	Branch, Junction to East Berlin.....	Hanover Branch.....	40.17	.....	144	3,073 51	.....	50 40
8033	Branch, Junction to East Berlin.....	Hanover Branch.....	23.31	134	3,460 05	49 50	
8034	Branch, Junction to East Berlin.....	Hanover Branch.....	68.9	.....	14	1,303 74	.....	64 90
8035	Branch, Junction to East Berlin.....	Hanover Branch.....	16.6	.....	12	.....	.....	40 00
8036	Branch, Junction to East Berlin.....	Hanover Branch.....	7.21	.....	6	.....	.....	40 00

Station	Line	Distance	Rate	Notes
80034	Huntingdon to Mount Dallas	45.14	12	57 60
80035	Station, Paxton to Dudley	6	6	45 00
80036	Branch to Currier'sville	47.5	12	62 10
80037	Branch to Martinsburg	24.52	21	46 80
80038	Branch, Martinsburg Junction to Harbottle	6.51	6	40 50
80039	Branch, Duncansville to Newry	3	6	40 50
80040	Branch to Ebensburg	10.9	12	45 00
80041	Branch, Leek Haven	55.1	12	55 80
80042	Branch, Milsburgh to Bellefonte	3.5	18	59 50
80043	Branch, Milsburgh to Allegheny	64.6	12	69 30
80044	Branch, Allegheny to Wheeling, W. Va.	32.49	6	41 02 05
80045	Branch, Wheeling to Oil City	132.6	19	16, 110 90
80046	Branch, Oil City to Indiana	1.19	9	51 50
80047	Branch, Indiana to Erie	36.63	12	57 60
80048	Branch, Erie to New Castle	94.5	12	100 40
80049	Branch, New Castle to Lake Shore and Michigan Southern	87.49	12	47 70
80050	Branch, Lake Shore and Michigan Southern to Lehigh and Lackawanna	17.18	12	45 00
80051	Branch, Lehigh and Lackawanna to West Chester	24	12	45 00
80052	Branch, West Chester to intersection	9	6	40 50
80053	Branch, Pennsylvania Railroad Junction to Milroy	12.5	15	45 00
80054	Branch, Milroy to Potteville	11.64	9 1/2	523 80
80055	Branch, Potteville to Frackville	46.4	9	46 40
80056	Branch, Frackville to Hilliard	19.02	6	36 00
80057	Branch, Hilliard to Pine Grove Furnace	22.06	12	50 40
80058	Branch, Pine Grove Furnace to Freeport	73	6	45 00
80059	Branch, Freeport to Butler	23.71	12	70 20
80060	Branch, Butler to Reading, Pa.	38.22	6 1/2	45 00
80061	Branch, Reading, Pa. to Pittsburgh	13.97	6	45 00
80062	Branch, Pittsburgh to Cincinnati and Saint Louis	43.39	8 1/2	45 00
80063	Branch, Cincinnati and Saint Louis to Philadelphia and Reading	25.32	6	40 50
80064	Branch, Philadelphia and Reading to Potomac Junction	13.64	9 1/2	45 00
80065	Branch, Potomac Junction to Emans	4.84	21	45 00
80066	Branch, Emans to Colbrookdale	150.1	18	87 30
80067	Branch, Colbrookdale to Lebanon	9.39	6	45 00
80068	Branch, Lebanon to Towson	11.7	12	54 00
80069	Branch, Towson to Berulce	38.25	6	45 00
80070	Branch, Berulce to Schuylkill Haven	52.4	14 1/2	54 00
80071	Branch, Schuylkill Haven to Glen Carbon	12.98	13	46 80
80072	Branch, Glen Carbon to Cottontown	12.06	6	45 00
80073	Branch, Cottontown to Cumberland, Md.	42.38	6	45 00
80074	Branch, Cumberland, Md. to Pleasant	11.1	6	45 00
80075	Branch, Pleasant to Mount Airy	11.1	6	45 00
80076	Branch, Mount Airy to Uniontown	11.1	6	45 00
80077	Branch, Uniontown to Spring Mills	11.1	6	45 00
80078	Branch, Spring Mills to Lehigh Valley	11.1	6	45 00
80079	Branch, Lehigh Valley to Titusville	11.1	6	45 00
80080	Branch, Titusville to Buffalo	11.1	6	45 00

107 per annum included for mail-messenger service.

B.—Railroad service as in operation on the 30th of June, 1878—Continued.

Number of route.	State and termini.	Corporate title of company carrying the mail.	Distance.	Total distance in each State.	Number of trips per week.	Annual pay.	Annual pay in each State.	Annual cost per mile on each route.	Remarks.
			Miles.	Miles.		Dollars.	Dollars.	Dollars.	
PENNSYLVANIA—Continued.									
8069	Towanda to Barclay.	Towanda Coal Company.	17.19	.....	6	686 19	.....	94 50	
8071	Marion Junction to Mercersburg.	.....	31.44	.....	6	964 40	.....	160 50	
8072	Mount Dallas Station to Bard.	.....	31	.....	12	1,737 70	.....	146 70	
8073	Altoona to Harrisburg.	Pennsylvania.	90.60	.....	24	10,464 10	.....	436 50	
8074	Conshohocken to Flourtown.	Philadelphia and Reading.	17.3	.....	6	328 50	.....	54 50	
8075	Easton to Allentown.	do.	17.3	.....	44	2,741 06	.....	62 50	
8076	Red Bank Furnace to Driftwood.	Lehigh Valley.	108.49	.....	9	5,637 35	.....	625 00	
8077	Chambersburg to Mont Alto.	Allegheny Valley.	14.73	.....	6	1,307 37	.....	218 00	
8078	York Junction to Hanover.	Montrose.	28.03	.....	6	1,302 25	.....	218 00	
8079	Pittsburgh to Monaca.	Cumberland Valley.	8.85	.....	6	398 23	.....	66 00	
8081	Pittsburgh to Monaca.	Pittsburgh, Virginia and Charleston.	31.04	.....	12	1,732 03	.....	145 00	
8082	Valley Junction to Ebbvale, Md.	Bachman Valley.	12.97	.....	4	350 19	.....	87 00	
8083	Pomeroy to Delaware City, Del.	Pennsylvania.	38.97	.....	9	1,402 92	.....	156 00	
8084	Hollidaysburg to Royer.	do.	20.43	.....	9	919 35	.....	102 00	
8085	Mount Union to Broad Top.	East Broad Top Railroad and Coal Company.	32.05	.....	6	1,298 02	.....	215 00	
8086	Pollack to Butler.	Parker and Kams City.	27	.....	24	1,409 40	.....	58 20	
8087	Bellwood to Lloydville.	Bell's Gap.	2.84	.....	6	318 24	.....	53 00	
8088	Philadelphia to Morrisdale Mines.	Pennsylvania.	3.59	.....	6	161 53	.....	27 00	
8089	Reading to Slatington.	Philadelphia and Reading.	43.73	.....	6	1,771 06	.....	228 00	
8090	Herrin to Garrett.	Buffalo Valley.	8.53	.....	12	383 85	.....	32 00	
8091	Larabee to Clermont.	McKean and Buffalo.	22.15	.....	6	996 75	.....	164 00	
8092	York to Delta.	Peach Bottom.	36.35	.....	6	1,831 25	.....	238 00	
8093	Lawsonham to Shigo.	Allegheny Valley.	10.41	.....	6	374 76	.....	62 00	
8094	Oxford to Peter's Creek.	Peach Bottom.	21.93	.....	6	848 16	.....	141 00	
8095	Pittsburgh to Casle Shannon.	Pittsburgh and Castle Shannon.	7	.....	6	252 00	.....	42 00	
8096	New Castle to Stoneborough.	New Castle and Franklin.	36.49	.....	6	1,642 05	.....	207 00	
8097	White Haven to Upper Lehigh.	Central Railroad Company of New Jersey.	9.85	.....	6	354 00	.....	59 00	
8098	Norristown to Landale.	Stony Creek.	10.3	.....	12	417 15	.....	34 50	
8099	Owens Mills to Jame.	Pennsylvania.	9.2	.....	6	372 60	.....	48 50	
8100	Tamque to Mauch Chunk.	Central Railroad Company of New Jersey.	13.7	.....	6	554 85	.....	68 50	
8101	Wilkes Barre to Wanamie.	do.	11.85	.....	6	467 71	.....	56 00	
8102	Hanover Junction to Hanover.	Hanover Branch.	13.37	.....	12	927 87	.....	77 00	

	Jenkintown to Boundbrook.....	Delaware and Boundbrook Pennsylvania.....	49.1	6	2,800 50	45 00
	Southwest Junction to Oliphant Furnace.....	Pennsylvania.....	41 9	6	2,187 18	52 20
	Eminton to Clarion.....	Eminton and Sulphensville.....	30.13	13	1,780 12	50 40
	Millersburg to Williamstown.....	Sunmit Branch.....	31.09	12	340 65	43 00
	Lewistown Junction. Grove Junction.....	Pennsylvania.....	45	6	2,025 00	45 00
	Arlington to Bradyville.....	Northeast Pennsylvania.....	11.3	6	452 00	40 00
	Fall Brook Coal Company.....	Fall Brook Coal Company.....	6.5	6	292 50	45 00
	Blossburgh to Fall Brook.....	Foxburgh, Saint Petersburg and Clarion.....	8.6	6	344 00	40 00
	Foxburgh to Turkey City.....	Washington.....	28.72	6	4,148 80	Do.
	Washington to Waynesburgh.....	Pittsburgh, Castle Shannon and Washington.....	12.55	6	502 00	Do.
	Castle Shannon to Finleyville.....	Gravety.....	17.3	6	692 00	Do.
	Honesdale to Carbondale.....	Philadelphia, Newtown and New York.....	27.1	6	1,084 00	Do.
	Newtown Junction to Newtown.....					
			4,804.4		630,496 20	
	DELAWARE.					
9501	Wilmington to Delmar.....	Philadelphia, Wilmington and Baltimore.....	97.02	12	11,002 56	113 40
9502	Delmar to Crisfield, Md.....	Eastern Shore.....	38	6	2,738 00	72 00
9503	Clayton to Easton, Md.....	Maryland and Delaware.....	44	6	2,455 20	55 40
9504	Harrington to Lewes.....	Junction and Breakwater.....	40	12	1,800 00	45 00
9505	Wilmington to Landenburgh, Pa.....	Delaware Western.....	19.53	6	790 96	40 50
9506	Georgetown to Solbyville.....	Breakwater and Frankford.....	19.3	6	848 50	45 00
			257 65		19,653 22	
	MARYLAND.					
10001	{ Baltimore to Philadelphia, Pa. } Branch, Perryville, do Port Deposit.....	Philadelphia, Wilmington and Baltimore.....	{ 96 4.11 }	{ 36½ 6 }	{ 480 50 45 00 }	
10002	Baltimore to Sunbury, Pa.....	Northern Central.....	140.7	24	28,580 24	203 20
10003	Baltimore to Wheeling, W. Va....	Baltimore and Ohio.....	{ 294.7 98.92 }	{ 92 33 }	{ 128,975 39 54 90 }	340 10 300 10
10004	Araby to Frederick.....	do.....	3.75	33	905 97	54 90
10005	Weverton to Hagerstown.....	Western Maryland.....	24.53	12	1,340 15	55 00
10006	Baltimore to Williamsport.....	Annapolis and Elk Ridge.....	33.92	12	1,111 41	65 70
10007	Annapolis to Annapolis Junction.....	Dartlesford and Delaware.....	21.5	15	1,334 50	63 00
10008	Cummins to Seaford, Del.....	Queen Anne and Kent.....	33.63	6	1,513 35	45 00
10009	Seaford to Ocean City.....	Quebec Anne and Kent.....	31.02	6	1,395 80	45 00
10010	Towson, Del., bet. entriesville, Md. Cumberland to Pridemont, W. Va.....	Cumberland and Pennsylvania.....	36.34	6	1,635 30	45 00
10011	Clayton, Del., to Chestertown, Md. Bay View to Washington, D.C.....	Kent County.....	33.76	6	1,519 20	45 00
10012	Rowe to Poplar Creek.....	Baltimore and Potomac.....	30.08	6	1,570 17	52 20
10013	Newtown Junction to Newtown.....	do.....	46.1	4½	18,384 64	398 80
10014	Seaford to Seaford.....	Worcester and Somerset.....	48.88	6	2,375 58	48 00
10015	Seaford to Seaford.....	Worcester and Somerset.....	9.7	6	436 50	45 00
10016	Seaford to Seaford.....	Worcester and Somerset.....	35.96	6	1,615 20	45 00
10017	Saint Dennis to Point of Rocks.....	Baltimore and Ohio.....	80	14½	4,050 00	67 50

B.—Railroad service as in operation on the 30th of June, 1878—Continued.

Number of route.	State and terminal.	Corporate title of company carrying the mail.	Distance. Miles.	Total distance in each State. Miles.	Number of trips per week.	Annual pay. Dollars.	Annual pay in each State. Dollars.	Annual cost per mile on each route.	Remarks.
MARYLAND—Continued.									
10018	Lake Roland to Western Maryland Railroad Junction.	Northern Central	8.5		6	396 00		36 00	
10019	Emmitsburgh to Rocky Ridge.	Emmitsburgh	7	1,158.5	12	315 00	219,019 37	45 00	
VIRGINIA.									
11001	Washington, D. C., to Richmond, Va.	Richmond, Fredericksburgh and Potomac.	131.2		13	44,503 04		339 20	
11002	{ Alexandria to Lynchburgh..... } Branch, Owl Run to Warrenton }	Washington City, Virginia Mid-land and Great Southern.	171.35		14 }	34,634 31		200 50	
11003	Manassas to Strasburg.	do	62.55		12 }	2,414 75		52 20	
11004	Alexandria to Round Hill.	Washington and Ohio.	52.74		6	3,037 42		45 00	
11005	Richmond to Huntington, W. Va.	Chesapeake and Ohio.	421.14		12	35,249 41		57 60	
11006	Richmond to Greensborough, N. C.	Richmond and Danville.	159.67		104	32,092 16		169 20	
11007	Richmond to West Point.	Richmond, York River and Chesapeake.	40.5		12	1,895 40		46 80	
11008	Richmond to Petersburg.	Richmond and Petersburg.	24.07		20	6,034 34		250 70	
11009	Petersburgh to Weldon, N. C.	Petersburgh	65.31		13	12,406 90		190 00	
11010	Petersburgh to City Point.	Atlantic, Mississippi and Ohio	10		6	450 00		45 00	
11011	Petersburgh to Norfolk.	do	81.5		6	5,574 60		68 40	
11012	Petersburgh to Lynchburgh.	do	131.25		6	6,877 35		55 80	
11013	Lynchburgh to Bristol, Tenn.	do	205		14	36,131 00		176 20	
11014	Glade Spring to Saltville.	do	9.5		6	342 00		3 00	
11015	Portsmouth to Weldon, N. C.	Seaboard and Roanoke	79.31		6	3,917 21		50 40	
11016	Lynchburgh to Danville.	Washington City, Virginia Mid-land and Great Southern.	65.97		6	3,503 00		53 10	
11017	Chester to Winterpock.	Clover Hill	18.75		6	337 50		18 00	
11018	Washington, D. C., to Alexandria, Va.	Alexandria and Washington	7		174	1,466 50		209 50	
11020	Fredericksburgh to Orange C. H.	Royal Land Company	36.25	1,806 23	6	1,721 25	231,990 58	45 00	

B.—Railroad service as in operation on the 30th of June, 1878—Continued.

Number of route.	State and termini.	Corporate title of company carrying the mail.	Distance.	Total distance in each State.	Number of trips per week.	Annual pay.	Annual pay in each State.	Annual cost per mile on each route.	Remarks.
			<i>Miles.</i>	<i>Miles.</i>		<i>Dollars.</i>	<i>Dollars.</i>	<i>Dollars.</i>	
SOUTH CAROLINA—Continued.									
14008	Alston to Spartanburgh Court-House.	Spartanburgh and Union.	62.12	.....	6	3,065.40	.....	45.00	
14009	Anderson Court House to Wallhalla.	Greenville and Columbia.	35.06	.....	6	1,577.70	.....	45.00	
14010	Port Royal to Augusta.	Port Royal.	112.2	.....	6	5,755.46	.....	51.30	
14011	Spartanburgh Court House to Lynn.	Spartanburgh and Asheville.	24.5	.....	6	1,292.50	.....	45.00	
				1,157.5			90,219.13		
GEORGIA.									
15001	Atlanta to Charlotte, N. C.	Atlanta and Charlotte.	266.5	.....	7	35,257.95	.....	132.30	
15002	Atlanta to Chattanooga.	Western and Atlantic.	138.47	.....	14	23,775.29	.....	171.70	
15003	Atlanta to West Point.	Atlanta and West Point.	86.68	.....	14	12,169.88	.....	140.40	
15004	Augusta to Atlanta.	Georgia.	171.63	.....	12	24,507.33	.....	142.40	
15005	Milledgeville to Augusta.	Central Railroad and Banking Company.	53.125	.....	14	3,538.12	.....	66.60	
15006	Washington to Barnett.	Georgia.	18.86	.....	6	848.70	.....	45.00	
15007	Union Point to Athens.	do	38.92	.....	6	2,247.54	.....	55.80	
15008	Kingston to Rome.	Rome.	50.35	.....	7	915.75	.....	45.00	
15009	Savannah to Live Oak.	Atlantic and Gulf.	179.20	.....	13	28,075.61	.....	118.80	
15010	Branch, Dupont to Rainbridge.	Central Railroad and Banking Company.	106.37	.....	7	13,660.04	.....	45.00	
15011	Macon to Columbus.	South Western.	100.94	.....	13	6,905.14	.....	69.30	
15012	Macon to Atlanta.	Central Railroad and Banking Company.	103.52	.....	13	10,527.98	.....	101.70	
15013	Macon to Brunswick.	Macon and Brunswick.	188	.....	6	12,850.80	.....	66.60	
15014	Branch, Cochran to Hawkinsville.	do	10	.....	6	631.25	.....	36.00	
15015	Gordon to Milledgeville.	Central Railroad and Banking Company.	18.25	.....	6	895.62	.....	45.00	
15016	Eaton to Milledgeville.	do	22.125	.....	6	12,781.17	.....	45.00	
15017	Branch, Smithville to Albany.	South Western.	144.84	.....	5	12,781.17	.....	67.50	
15018	Branch, Cuthbert to Fort Gaines.	do	53.76	.....	5	479.92	.....	36.00	
15019	Branch, Albany to Arlington.	do	33.5	.....	5	31.50	.....	31.50	
15020	Port Valley to Perry.	do	13.32	.....	6	2,479.92	.....	36.00	
15021	Thomasville to Albany.	Atlantic and Gulf.	56.91	.....	7	2,479.92	.....	45.00	

15019	Barnesville to Thomaston.....	Central Railroad and Banking Com- pany.	17.25	6	621 00	36 00
15020	Cartersville to Rock Mart.....	Cherokee.....	92 08	6	596 16	27 00
15021	Cannock to Macon.....	Macon and Augusta.....	60 66	6	4,353 04	54 00
15022	Griffin to Carrollton.....	Savannah, Griffin and North Ala- bama.....	56 96	6	2,434 33	40 50
15023	Brunswick to Albany.....	Brunswick and Albany.....	173 31	3	4,679 37	27 00
15024	Columbus to Hamilton.....	North and South.....	21 51	6	740 57	31 50
15025	Athens to Bellton.....	Northeastern Railroad Company of Georgia.	40 53	6	1,923 25	45 00
			2,435.375		306,349 60	
FLORIDA.						
16001	Fernandina to Cedar Keys.....	Atlantic, Gulf and West India Transportation Company.	154.8	6	5,372 80	36 00
16002	Lake City to Chattahoochee River?	Jacksonville, Pensacola and Mo- bile.	154.23	11 1/2	9,277 66	57 60
	Branch, Tallahassee to Saint Mark's.		21.89	3		18 00
16003	Pensacola to Whiting Junction.....	Pensacola and Louisville.....	44 05	13	1,902 90	43 20
16004	Tacol to Saint Augustine.....	Saint John's.....	15 69	6	706 05	45 00
16005	Pensacola to Millview.....	Pensacola and Perdido.....	10 625	6	246 88	27 00
16006	Jacksonville to Lake City.....	Florida Central.....	60.3	13	3,473 26	57 60
			461.385		21,212 63	
ALABAMA.						
17001	Montgomery to West Point, Ga....	Western Railroad Company of Alabama.	88.5	14	12,186 45	137 70
17002	Montgomery to Selma.....	do.....	50	7	2,250 00	45 00
17003	Montgomery to Eufaula.....	Montgomery and Eufaula.....	81.84	7 1/2	3,728 91	45 90
17004	Montgomery to Decatur.....	South and North Alabama.....	183 66	14	16,364 92	88 56
	Memphis, Tenn., to Stevenson, Ala.		271.5	14		99 00
17005	Branch, Moscow to Somerville.....	Memphis and Charleston.....	14.5	7	27,823 50	45 00
	Branch, Tusculum to Florence.....		6.5	7		45 00
17006	Marion Junction to Greensborough	Selma, Marion and Memphis.....	36.03	6	1,621 35	45 00
17007	Opelika to Columbus, Ga.....	Western Railroad Company of Alabama.	28	14	1,764 00	63 00
17008	Columbus, Ga., to Troy, Ala.....	Mobile and Girard.....	90	6	3,628 80	40 32
17009	Selma to Meridian, Miss.....	Alabama Central.....	108.2	7	6,524 46	60 30
17010	Selma to Dalton, Ga.....	Selma, Rome and Dalton.....	237.5	7	12,825 00	54 00
17011	Gainesville to Gainesville Junc- tion, Miss.	Mobile and Ohio.....	21.07	7	853 33	40 50
17012	Mobile to Montgomery.....	Mobile and Montgomery.....	64.98	14	21,087 08	141 30
	Mobile to New Orleans, La.....		113.29	14		113 04
17013	Opelika to Buffalo.....	New Orleans, Mobile and Texas.....	141.88	14	22,090 71	155 70
17014	Chattanooga, Tenn., to Meridian, Miss.	East Alabama and Cincinnati.....	22.5	6	810 00	36 00
17015	Opelika to Good Water.....	Alabama and Chattanooga.....	24.5	7	10,840 50	43 00
17016	Selma to Pine Apple.....	Savannah and Memphis.....	59.65	7	2,415 83	36 00
17017		Selma and Gulf.....	43.19	4	1,749 20	40 50

B.—Railroad service as in operation on the 30th of June, 1878—Continued.

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ALABAMA—Continued.									
17018	Mobile to Bigbee Bridge.....	Mobile and Alabama Grand Trunk	50.7		6	1,821 90			\$210 per annum included for mail-messenger service.
17019	Chehaw to Tuskegee.....	Tuskegee.....	6		14	270 00		45 00	
17020	Atala to Gadsden.....	East Alabama and Cincinnati	6		6	270 00		45 00	
17021	Enfola to Clayton.....	Vicksburg and Brunswick	21.81		6	755 16		36 00	
17022	Selma to Martin's Station.....	Selma and New Orleans	20.5		3	553 50		37 00	
				2,071.2			153,065 50		
MISSISSIPPI.									
18001	Canton to Cairo, Ill.....	New Orleans, Saint Louis and Chicago.	344.11		7	44,286 95		128 70	\$200 per annum included for mail-messenger service.
18002	Memphis, Tenn., to Grenada, Miss	Mississippi and Tennessee.....	101.31		10	6,656 07		65 70	
18003	Vicksburg to Meridian.....	Vicksburg and Meridian.....	45.33		7	8,059 00		81 70	
	Mobile, Ala., to Columbus, Ky. {		85.21		7			46 08	
	Branch, Artesia to Columbus, Miss. {		472.73		7			57 60	
18004	Branch, Artesia to Starkville... {	Mobile and Ohio.....	14.03		7	28,223 16		45 00	
	Branch, Artesia to Port Gibson... {		11.51		34			31 50	
18006	Grand Gulf to Port Gibson.....	Grand Gulf and Port Gibson.....	8		6	560 00		45 00	
18007	Muldon to Aberdeen.....	Mobile and Ohio.....	0.47		7	340 92		36 00	
18008	Middleton Station, Tenn., to Ripley, Miss.	Ripley.....	23.15		6	903 40		36 00	
18009	Durant to Kosciusko.....	New Orleans, Saint Louis and Chicago, operating Mississippi Central.	31.57		6	776 52		36 00	
18010	Natchez to Fayette.....	Natchez, Jackson and Columbus..	26	1,174.42	6	1,170 00	90,978 02	45 00	Pay estimated.
TENNESSEE.									
19001	Nashville to Lebanon.....	Tennessee and Pacific.....	32.75		6	1,473 75		45 00	{ 170 40
19002	Triest to Chattanooga.....	East Tennessee, Virginia and Georgia.	242.7		14	44,043 81		90 90	

19003	Rogersville to Bull's Gap	15	.....	6	715 00	45 00	\$40 per annum included for mail-messenger service.
19004	{ Nashville to Chattanooga	114	.....	13	.....	150 30	{ \$1,912.50 per annum included for daily line of railway
19005	{ Branch, Wartrace Depot to Shelbyville.	39	.....	20	25,268 40	150 30	{ post-office cars.
19006	{ Fayetteville to Decherd	40	.....	6	1,800 00	45 00	
19007	{ Nashville to Decatur, Ala	47	.....	14	13,092 60	117 00	
19008	{ Nashville to Hickman, Ky	155	.....	7	.....	100 80	
19009	{ Nashville to Paris	115.9	.....	13	13,921 47	77 40	
19010	{ Memphis to Louisville	17.3	.....	20	21,110 85	77 40	{ 89 miles at \$135 per mile per annum.
19011	{ Knoxville to Ohio	38.94	.....	13	.....	40 50	{ 43.5 miles at \$200.10 per mile per annum.
19012	{ Knoxville to Wolf Creek	39.8	.....	6	1,577 07	40 50	
19013	{ Tracy City to Cowan	23	.....	6	1,432 80	36 00	
19014	{ Memphis to Covington	38.31	.....	6	826 00	36 00	
19015	{ Victoria to Bridgeport, Ala	19.575	.....	6	1,379 16	36 00	
19016	{ Tallahoma to McMinnville	35	.....	6	538 63	27 00	
19017	{ Knoxville to Maryville	16.27	.....	6	1,575 00	45 00	Pay estimated on 7.675 miles.
19018	{ Columbia to Lewisburgh	20.23	.....	6	658 94	40 50	
		1,177.028	.....	6	819 31	40 50	
			.....		120,532 79		
20001	Ashland to Geigersville	13.98	.....	6	377 46	27 00	
20002	Covington to Lexington	90	.....	12	10,513 20	106 30	
20003	La Grange to Lexington	67	.....	12	5,246 10	78 30	
20004	Cincinnati, Ohio, to Louisville, Ky	108.75	.....	18	24,225 25	207 00	\$6,507 per annum included for two daily lines of railway post-office cars.
20005	Louisville to Nashville, Tenn	119.44	.....	182	49,350 01	277 80	
20006	{ Bardonia Junction to Bardonia	72.1	.....	124	.....	247 50	
20007	{ Lebanon Junction to Fish Point	76.4	.....	7	700 65	40 50	
20008	{ Branch, Richmond Junction to Richmond	33.5	.....	6	8,506 29	69 30	
20009	{ Bowling Green to Paris	32.8	.....	6	.....	40 50	
20010	{ Paducah to Trimble	124.06	.....	13	28,156 80	54 30	
20011	{ Paducah and Memphis	50	.....	12	3,448 80	210 00	
20012	{ Elizabethtown to Paducah	186.19	.....	6	12,547 83	45 00	
20013	{ Glasgow Junction to Glasgow	12	.....	6	540 00	67 50	
20014	{ Anchorage to Shelbyville	19	.....	104	855 00	45 00	
	{ Willard to Greenup	34.5	.....	12	1,397 25	45 00	
	Eastern Kentucky .....		.....	6		40 50	

KENTUCKY.

B.—Railroad service as in operation on the 30th of June, 1878—Continued.

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KENTUCKY—Continued.									
20015	Owensborough to Owensborough Junction.	Owensborough and Nashville	36.13	6	1,625 85	45 00	
20016	Maysville to Paris	Maysville and Lexington	50	.....	6	9,970 00	.....	59 40	
20017	Lexington to Mount Sterling	Louisville, Cincinnati and Lexington. do	33.84	.....	12	1,644 63	.....	48 60	
20018	Cincinnati Junction to Louisville and Nashville Junction.	.....do	4.13	.....	12	984 30	.....	163 80	\$247.80 per annum included for two daily lines of railway post-office cars.
20019	Louisville to Cecilia	Louisville and Nashville	46.72	.....	6	1,892 16	.....	40 50	
20020	Johnson's Junction to Flemingsburgh.	Covington, Flemingsburgh and Pound Gap.	5.42	.....	6	943 90	.....	45 00	
20021	Cincinnati, Ohio, to Somerset, Ky.	Cincinnati Southern	160.26	.....	6	10,096 38	.....	63 00	Pay estimated.
20022	Harrodsburgh to Harrodsburgh Junction.	Southwestern	6.43	.....	6	269 35	.....	45 00	
20023	Mount Sterling to Rothwell	Mount Sterling Coal Railroad Company.	10.21	.....	6	864 45	.....	45 00	Do.
				1,460.82		171,436 86			
OHIO.									
21001	Bellaire to Columbus	Central Ohio	104.875	.....	20	25,750 78	.....	220 90	
21002	Pittsburgh, Pa., to Chicago, Ill.	Pittsburgh, Fort Wayne and Chicago.	33	.....	13	74 30	.....	74 30	
21003	Pittsburgh, Pa., to Bellaire, Ohio.	Cleveland and Pittsburgh	468.85	.....	19½	137,868 78	.....	284 10	
21004	Hudson to Columbus	Cleveland and Mount Vernon and Delaware.	94.5	.....	18	11,056 50	.....	117 00	
21005	Cleveland to Sharpsville, Pa.	Cleveland and Great Western	40	.....	6	11,159 82	.....	76 50	
21006	Cleveland to Wollaville	Atlantic and Great Western	44.88	.....	13	6,968 32	.....	82 40	
21007	Elyria to Millbury	Cleveland and Pittsburgh	54.4	.....	10½	14,379 92	.....	139 50	
21008	Bayard to New Philadelphia	Lake Shore and Michigan Southern	45.98	.....	12	45,985 41	.....	604 10	
21009	Minerva to Dull Key	Cleveland and Pittsburgh	74.98	.....	19	1,755 00	.....	54 00	
21010	Sandusky to Newark	Ohio and Toledo	32.5	.....	6	909 90	.....	45 00	
		Baltimore and Ohio, leasee	34	.....	18	91,944 40	.....	24 50	
			98	.....	18			520 90	

21011	Xenia to Dayton.....	Pittsburgh, Cincinnati and Saint Louis.	17	.....	18	979 20	.....	57 60
21019	Springfield to Sandusky	Cincinnati, Sandusky and Cleveland.	131.35	.....	13	9,457 90	.....	72 00
21013	Columbus to Delaware.....	land.	24.75	.....	6	2,227 50	.....	90 00
21014	Columbus to Cincinnati.....	Cleveland, Columbus, Cincinnati and Indianapolis.	120.43	.....	13	44,143 87	.....	366 40
21015	Columbus to Indianapolis, Ind.....	Pittsburgh, Cincinnati and Saint Louis.	188	.....	20	78,527 60	.....	407 70
21016	Galion to Indianapolis, Ind.....	Columbus, Chicago and Indiana Central.	119.4	.....	13	38,148 00	.....	187 00
21017	Blanchester to Hillsborough	Cleveland, Columbus, Cincinnati and Indianapolis.	14.6	.....	19	983 90	.....	45 90
21018	Portsmouth to Hamilton Junction	Marietta and Cincinnati.	51	.....	14	4,636 80	.....	94 90
21019	Branch, Hudson to Naples.....	do	476	.....	19	118,130 00	.....	942 50
21020	Branch, Clayton to Kookuk.....	Wabash	4	.....	12	4,748 45	.....	54 00
21020	Freemont to Minster	Lake Erie and Louisville	60.35	.....	6	648 00	.....	47 70
21021	Carey to Findlay	Cincinnati, Sandusky and Cleveland.	16	.....	6	.....	.....	45 00
21022	Dayton to Union City.....	land.	72.17	.....	12	2,324 42	.....	49 50
21023	Dayton to Toledo	Dayton and Union	142.96	.....	16	16,469 00	.....	115 80
21024	Hamilton to Indianapolis, Ind.....	Cincinnati, Hamilton and Indianapolis.	96.49	.....	15	5,730 82	.....	57 60
21025	Hamilton to Richmond, Ind.....	Cincinnati, Richmond and Chicago.	45.1	.....	19	3,653 10	.....	81 00
21026	Cincinnati to Dayton	Cincinnati, Hamilton and Dayton.	26.53	.....	584	8,877 06	.....	162 00
21027	Xenia to Springfield	Pittsburgh, Cincinnati and Saint Louis.	33.92	.....	27	855 00	.....	135 00
21028	Cincinnati to Parkersburgh, W. Va.	do	19	.....	12	.....	.....	45 00
21029	Morrow to Dresden.....	Pittsburgh, Cincinnati and Saint Louis.	195.15	.....	15	49,607 13	.....	254 20
21030	Dayton to Richmond, Ind.....	do	149.4	.....	62	8,470 86	.....	56 70
21031	North Bend to Hagersstown	Indianapolis, Cincinnati and Lafayette, lessee.	42	.....	12	2,154 60	.....	51 30
21032	Columbus to Pittsburgh, Pa.....	Pittsburgh, Cincinnati and Saint Louis.	193	.....	20	127,720 70	.....	64 10
21033	Branch, Means to Cadiz	Cincinnati, Sandusky and Cleveland.	45.86	.....	12	2,906 63	.....	61 20
21034	Salamanca, N. Y., to Dayton, Ohio.	land.	389.55	.....	6	32,955 93	.....	84 60
21035	Youngstown to Cross Cut.....	Pittsburgh, Fort Wayne and Chicago.	22.8	.....	16	1,026 00	.....	45 00
21036	Columbus to Athens	Columbus and Hooking Valley.	77.4	.....	15	5,333 85	.....	62 10
21037	Branch, Logan to New Straitsville. ....	.....	13.62	.....	15	.....	.....	40 50
21038	Niles to New Lisbon	Atlantic and Great Western	33.94	.....	6	1,618 94	.....	47 70
21039	Newark to Shawnee	Newark, Somerset and Stratsville.	44.045	.....	12	1,585 62	.....	36 00
21040	Clinton to Massillon	Cleveland, Mount Vernon and Delaware.	13.7	.....	6	493 90	.....	36 00
21040	Marietta to Canal Dover	Marietta and Pittsburgh.	99.96	.....	6	4,859 05	.....	48 60

\$1,880 per annum included for railway post-office cars.

Pay estimated on 10.81 miles.

1,930 per annum included for railway post-office cars.

B.—Railroad service as in operation on the 30th of June, 1878—Continued.

Number of route.	State and terminus.	Corporate title of company carrying the mail.	Distance.	Total distance in each State.	Number of trips per week.	Annual pay.	Annual pay in each State.	Annual cost per mile on each route.	Remarks.
			Miles.	Miles.		D. lars.	Dollars.	Dollars.	
OHIO—Continued.									
21041	Lorain to Ulrichsville.....	Cleveland, Tuscarawas Valley and Wheeling.	102.45	.....	61	6,915.38	.....	67.50	
21042	Cleveland to Cincinnati.....	Cleveland, Columbus, Cincinnati and Indianapolis.	80	.....	19	54,704.92	.....	289.90	
21043	Mansfield to Toledo.....	Pennsylvania Company.	165.25	.....	19	5,768.17	.....	274.90	
21044	Harbor to Youngstown.....	do	62.1	.....	12	2,794.50	.....	65.70	
21045	Toledo to Elkhart, Ind.....	Lake Shore and Michigan Southern	133.6	.....	14	74,254.86	.....	45.00	
21046	Painesville to Youngstown.....	Painesville and Youngstown	60.12	.....	6	2,413.62	.....	555.80	
21047	Chicago, Ohio, to Chicago, Ill.....	Baltimore and Ohio, operating Baltimore, Pittsburgh and Chicago Railroad.	271.1	.....	13	62,513.62	.....	46.80	
21048	Dyson's to Cumberland.....	Eastern Ohio.	7.8	.....	12	371.00	.....	45.00	
21049	Marietta to Parkersburg, W. Va.....	Marietta and Cincinnati	15.87	.....	26	1,024.37	.....	64.80	
21050	Athens to Scott's Landing.....	do	37	.....	6	1,406.50	.....	40.50	
21051	Columbus to Portsmouth.....	Scioto Valley	51.76	.....	6	4,837.42	.....	45.00	Pay estimated on 30.34 miles.
21052	Little Miami Junction to Scott's Branch, New Richmond Junction to Tobasco.	Cincinnati and Eastern	50.34	.....	6	2,389.53	.....	48.60	Pay estimated on branch.
21053	Columbus to Toledo.....	Columbus and Toledo	125.23	.....	6	6,198.84	.....	49.50	
21054	Dayton to Muskegon.....	Dayton and Southeastern	70.00	.....	6	3,634.69	.....	52.20	
21055	New Lexington to Mohala.....	Ohio Central	7.6	.....	6	342.00	.....	45.00	
21056	Saint Clairsville to Quincy.....	Bellaire and Saint Clairville, Narrow Gauge.	7.05	.....	24	317.25	.....	45.00	
21057	Washington C. H. to Waynesville Junction Cincinnati.	Columbus, Washington and Cincinnati.	38.06	.....	6	1,712.70	.....	45.00	Pay estimated.
21058	Jackson to Waverly.....	Springfield, Jackson and Pomeroy	25.73	.....	6	1,157.85	.....	45.00	Do.
21059	Dayton Railroad to Mount Healthy.	College Hill	7.08	.....	6	318.00	.....	45.00	Do.
INDIANA.				5,857.9			1,101,025.84		
22001	Indianapolis to Vincennes.....	Indianapolis and Vincennes	116.22	.....	6	6,595.35	.....	56.70	
22002	Indianapolis to Terre Haute.....	Terre Haute and Indianapolis	73	.....	24	31,149.10	.....	430.70	

										\$400 per annum included for aide service.	
22003	Indianapolis to Cincinnati, Ohio ..	Indianapolis, Cincinnati and La Fayette.	.....	113.5	18	33,936 50	.....	309 00			
22004	Indianapolis to Peru	Indianapolis, Peru and Chicago ..	.....	78	304	6,356 40	.....	73 80			
22005	Indianapolis to La Fayette	Indianapolis, Cincinnati and La Fayette.	.....	65.625	32	90,399 68	.....	310 70			
22006	Columbus to Madison	Jeffersonville, Madison and Indianapolis.	.....	46	12	2,525 40	.....	54 90			
22007	New Albany to Indianapolis	do .....	.....	114	19	15,082 20	.....	132 30			
22008	New Albany to Michigan City ..	Louisville, New Albany and Chicago.	.....	268	7	19,440 00	.....	67 50			
22009	Richmond to Chicago, Ill.	Pittsburgh, Cincinnati and Saint Louis.	.....	224.41	13	16,561 46	.....	73 80			
22010	Cincinnati, Ohio, to East Saint Louis, Ill.	Ohio and Mississippi .....	.....	341	134	73,315 00	.....	215 00			
22011	Cambridge City to Columbus	Jeffersonville, Madison and Indianapolis.	.....	68	6	3,060 00	.....	45 00			
22012	Evansville to Terre Haute	Evansville and Crawfordsville ..	.....	110	12	10,494 00	.....	95 40			
22013	Terre Haute to Rockville	Logansport, Crawfordsville and South western.	.....	23	6	1,035 00	.....	45 00			
22014	State Line to Logansport	Pittsburgh, Cincinnati and Saint Louis.	.....	61	6	4,117 50	.....	67 50			
22015	Peru to La Porte	Chicago, Cincinnati and Louisville.	.....	73	12	4,007 70	.....	54 90			
22016	Fairland to Martinsville	Fairland, Franklin and Martinsville.	.....	38.5	6	1,732 50	.....	45 00			
22017	Bradford to Logansport	Pittsburgh, Cincinnati and Saint Louis.	.....	114.6	12	6,085 26	.....	53 10			
22018	Indianapolis to Peoria, Ill.	Indianapolis, Bloomington and Western.	.....	212.2	18	20,434 86	.....	96 30			
22019	Jeffersonville to North Vernon ..	Ohio and Mississippi .....	.....	53.5	13	6,259 50	.....	117 00			
22020	Fort Wayne to Connersville	Fort Wayne, Muncie and Cincinnati.	.....	169	6	5,787 94	.....	53 10			
22021	Richmond to Fort Wayne	Grand Rapids and Indiana .....	.....	91.5	12	5,435 10	.....	59 40			
22022	Anderson to Goshen	Cincinnati, Wabash and Michigan.	.....	114.32	6	6,687 72	.....	58 50			
22023	Princeton to Albion, Ill.	Louisville, New Albany and Saint Louis.	.....	31.03	6	977 45	.....	31 50			
22024	Terre Haute to Danville, Ill.	Evansville, Terre Haute and Chicago.	.....	56.6	13	3,056 40	.....	54 00			
22025	Indianapolis to Terre Haute	Indianapolis and Saint Louis .....	.....	73	12	8,924 40	.....	115 30			
22026	La Porte to Michigan City	Indianapolis, Peru and Chicago ..	.....	12.36	12	556 20	.....	45 00			
22027	Bethel to Logansport	Detroit, Eel River and Illinois ..	.....	94.5	6	5,103 00	.....	54 00			
22028	Rockville to Logansport	Logansport, Crawfordsville and South western.	.....	92.1	6	4,383 17	.....	47 70			
22029	La Fayette to Kankakee, Ill.	Cincinnati, La Fayette and Chicago.	.....	75.75	13	21,967 50	.....	390 00			
22030	Terre Haute to Mariz	Cincinnati and Terre Haute .....	.....	26.15	6	823 73	.....	31 50			
22031	Attica to Veedersburgh	Indiana North and South .....	.....	14	6	504 00	.....	45 00			
22032	Evansville to Booneville	Lake Erie, Evansville and South western.	.....	18	12	810 00	.....	45 00			
22033	Frankfort to Kokomo	Frankfort and Kokomo .....	.....	25.5	12	1,101 60	.....	43 30			

B.—Railroad service as in operation on the 30th of June, 1878—Continued.

Number of route.	State and termini.	Corporate title of company carrying the mail.	Distance.	Total distance in each State.	Number of trips per week.	Annual pay.	Annual pay in each State.	Annual cost per mile on each route.	Remarks.
			Miles.	Miles.		Dollars.	Dollars.	Dollars.	
INDIANA—Continued.									
22004	Rockport to Huntingburgh.....	Cincinnati, Rockport and Southwestern.	31.02		6	977 13		31 50	
22005	Muncie to La Fayette.....	La Fayette, Muncie and Bloomington.	119.34		6	5,370 30		45 00	
22006	Switz City to Bedford.....	Bedford, Springfield, Owensborough and Bloomfield.	41.04		6	1,846 80		45 00	Pay estimated.
22007	Anderson to Nobleville.....	Anderson, Lebanon and Saint Louis.	20.2		6	909 00		45 00	Do.
22008	Monon to Rensselaer.....	Indianapolis, Delphi and Chicago.	16.42	1,274.485	6	738 90	377,917 71	45 00	Do.
ILLINOIS.									
22001	Chicago to Milwaukee, Wis.....	Chicago and Northwestern.....	85.89		25	19,926 48		232 00	
22002	Chicago to Freeport.....	do.....	41.68		16	24,997 44		208 00	
22003	Chicago to Union Pacific Transfer.	do.....	78.5		12				
22004	Eight to Geneva.....	do.....	317.36		15	117,579 00		289 87	
22005	Sterling to East Saint Louis.....	do.....	272.6		6	2,900 00		197 86	
		Saint Louis, Rock Island and Chicago.	44		6	18,353 64		50 00	
			291.36					63 00	
22007	Chicago to Burlington, Iowa... Branch, Aurora to Galena Junction.	Chicago, Burlington and Quincy	38.61		36			345 20	
	Branch, Galva to Keosauqua.		164.28		36	71,312 59		322 70	
22008	Rushville to Yates City.....	do.....	13		30			45 00	
	Branch, Elmwood to Buda.....	do.....	59.3		6			52 30	
22009	Peoria to Galasburgh.....	do.....	63.75		6	5,908 88		51 30	
22010	Galasburgh to Quincy.....	do.....	45		6			58 50	
22011	Burlington, Iowa, to Quincy, Ill.	do.....	54		124	7,290 00		135 00	
22012	Streator to Aurora.....	do.....	100		12	17,710 00		177 10	
22013	Branch, Aurora to Batavia.....	do.....	71.85		6	4,069 23		55 80	
22014	Branch, Aurora to Clinton, Iowa.....	do.....	60.79		12	3,765 66		54 00	
	Rock Falls to Cornland.....	do.....	9		6	2,889 55		45 00	
			64.19		6	2,125 35		45 00	
			47.25		6				

20015	Chicago to Davenport, Iowa	{ 158.6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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B.—Railroad service as in operation on the 30th of June, 1878—Continued.

Number of route.	State and termini.	Corporate title of company carrying the mail.	Distance.	Total distance in each State.	Number of trips per week.	Annual pay.	Annual pay in each State.	Annual cost per mile on each route.	Remarks.
			Miles.	Miles.		Dollars.	Dollars.	Dollars.	
ILLINOIS—Continued.									
23046	Jacksonville to Virden.....	Jacksonville, Northwestern and Southern.	31.36		6	1,271 30		40 50	
23047	Chicago to Toronto.....	Wabash, Chicago and Western.	42		6	2,230 90		53 10	
23048	Terre Haute, Ind., to Peoria, Ill.	Illinois, Peoria and Western.	179.93		6	8,996 50		50 00	
23049	Springfield to Havana.....	Springfield and Northwestern.	44.2		24	2,169 00		46 40	
23050	Springfield to Havana.....	Springfield and Northwestern.	114.19		6	5,444 00		46 40	
23051	Chicago, Peoria and Northwestern.	Chicago, Peoria and Northwestern.	126 02		6	5,470 90		45 00	Pay estimated.
23052	Courland Station to Sycamore.....	Sycamore and Courland.	5		12	620 00		54 00	mail-messenger service.
23053	East Saint Louis to Cairo.....	Cairo and Saint Louis.	148.5		6	7,484 40		50 40	
23054	Chicago to Byron.....	Chicago and Pacific.	90.46		6	3,679 83		40 50	
23055	Decatur to Mountzuma.....	Indianapolis, Decatur and Spring field.	87		6	3,915 00		45 00	
23056	Geneva to Batavia.....	Chicago and Northwestern.	3.5		6	175 00		50 00	
23057	Richfield to Jackson.....	Chicago and Iowa.	27.64		6	1,843 80		45 00	Pay estimated.
23058	West Lebanon, Ind., to Fisher, Ill.	Havana, Rantoul and Eastern.	52.5		6	2,462 50		45 00	Do.
23059	Rock Island to Cable.....	Rock Island and Mercer County.	21.9		6	985 50		45 00	Do.
23060	Parkersburg to Mattoon.....	Grayville and Mattoon.	66.66		6	1,741 50		25 00	
23061	El Dorado to Cave.....	Belleville and El Dorado.	28.18		6	1,268 10		45 00	Pay estimated.
			7,134.14			871,913.35			
MICHIGAN.									
24001	Toledo, Ohio, to Detroit, Mich.	Lake Shore and Michigan Southern.	65.37		504	6,811 45		135 00	
24002	Monroe to Adrian.....	do.	35.33		12	2,536 56		73 00	
24003	Adrian to Jackson.....	do.	47.35		6	2,764 12		58 50	
24004	White Pigeon to Grand Rapids.	do.	95.67		9	7,749 37		81 00	
24005	Detroit to Chicago, Ill.	Michigan Central.	254		334	63,378 00		931 00	
24006	Detroit to Grand Haven.....	Detroit and Milwaukee.	180.67		15	19,650 84		103 50	
24007	Detroit to Port Huron.....	Grand Trunk.	64.5		15	6,791 85		105 30	
24008	Jackson to Fort Wayne, Ind.	Fort Wayne, Jackson and Saginaw.	96.92		6	5,925 36		61 20	
24009	Jackson to Gaylord.....	Michigan Central.	169		14	12,834 40		60 00	
24010	Jackson to Grand Rapids.....	do.	67.36		12	6,537 40		40 00	
24011	Leont to Romeo.....	Saint Clair and Chicago Air Line.	94.86		12	8,374 46		90 00	
24012	Detroit to Bay City.....	Detroit and Bay City.	16.13		12	725 85		45 00	
24013			108.97		12	9,262 45		85 00	

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B.—Railroad service as in operation on the 30th of June, 1878—Continued.

Number of route.	State and termini.	Corporate title of company carrying the mail.	Distance.	Total distance in each State.	Number of trips per week.	Annual pay.	Annual pay in each State.	Annual cost per mile on each route.	Remarks.
			Miles.	Miles.		Dollars.	Dollars.	Dollars.	
WISCONSIN—Continued.									
25002	Milwaukee to La Crosse.....	Chicago, Milwaukee and Saint Paul	116.64	.....	12	47,732 44	.....	344 00	
25003	Milwaukee to Berlin.....	do.	61.6	.....	12	.....	.....	352 68	
25004	Milton Junction to Monroe.....	do.	16.8	.....	12	.....	.....	354 00	
25005	Watertown to Madison.....	do.	94.8	.....	12	8,935 60	.....	72 00	
25006	Horton to Portage.....	do.	42.8	.....	6	2,462 40	.....	58 00	
25007	Nepeuskun to Winneconne.....	do.	38.45	.....	6	1,923 50	.....	50 00	
25008	Oshkosh to Ripon.....	do.	45.35	.....	6	2,202 50	.....	50 00	
25009	Chicago, Ill., to Green Bay, Wis.	do.	16.35	.....	6	731 53	.....	45 00	
25010	Caledonia Station, Ill., to Winona Junction, Wis.	Chicago and Northwestern.....	21	.....	12	1,050 00	.....	50 00	
25011	Kenosha to Rockford, Ill.	do.	176.7	.....	14	52,398 90	.....	230 00	
25012	Winona, Minn., to Winona Junction, Wis.	do.	68.5	.....	12	.....	.....	176 80	
25013	Milwaukee to Fond du Lac.....	La Crosse, Trempealeau and Prescott.	135.45	.....	12	91,723 40	.....	132 00	
25014	Green Bay to Winona, Minn.	Chicago and Northwestern.....	54.9	.....	12	.....	.....	70 00	
25015	Green Bay to Winona, Minn.	do.	73.8	.....	6	5,590 00	.....	75 00	
25016	Winona to Ashland.....	do.	30.45	.....	12	5,176 50	.....	170 00	
25017	Monona to Ashland.....	do.	63.53	.....	6	4,320 04	.....	68 00	
25018	Monona to Two Rivers.....	do.	199	.....	12	12,686 39	.....	63 36	
25019	Shabogagan to Princeton, Wis.	do.	3.5	.....	6	.....	.....	27 00	
25020	Shabogagan to Princeton, Wis.	do.	916.41	.....	6	11,253 32	.....	52 00	
25021	Shabogagan to Princeton, Wis.	do.	111.54	.....	6	7,690 25	.....	61 20	
25022	Shabogagan to Princeton, Wis.	do.	16	.....	6	12,190 57	.....	54 00	
25023	Shabogagan to Princeton, Wis.	do.	251.02	.....	12	.....	.....	48 60	
25024	Shabogagan to Princeton, Wis.	do.	45	.....	6	9,514 74	.....	75 00	
25025	Shabogagan to Princeton, Wis.	do.	44.5	.....	6	.....	.....	45 00	
25026	Shabogagan to Princeton, Wis.	do.	91.06	.....	6	4,012 50	.....	54 00	
25027	Shabogagan to Princeton, Wis.	do.	79.05	.....	6	1,465 00	.....	50 00	
25028	Shabogagan to Princeton, Wis.	do.	33	.....	6	.....	.....	45 00	
25029	Shabogagan to Princeton, Wis.	do.	18.7	.....	6	935 00	.....	50 00	
25030	Shabogagan to Princeton, Wis.	do.	90.04	.....	6	4,051 80	.....	45 00	
25031	Shabogagan to Princeton, Wis.	do.	39.5	.....	6	1,777 50	.....	45 00	

\$60 per annum included for mail-messenger service

25024	{ Racine to Rock Island Junction, } Ill.	{ 150.4 18.1 }	12	{ 14,451.30 45.00 }	{ 72.00 45.00 }	Pay estimated on branch.
25025	{ Branch, Elkhorst Eagle, } Ill.	{ 30.69 11.67 }	6	{ 1,381.05 45.00 }	{ 45.00 45.00 }	
25026	East Clare to Chippewa Falls	73.23	12	3,534.97	48.60	
25027	Wisconsin Central	44	6	1,980.00	45.00	
25028	Hudson to Clayton	16.5	6	742.50	45.00	
25029	Loue Rock to Klobland Centre	6.5	6	292.50	45.00	Pay estimated.
25030	Onalaska to La Crosse	12.76	6	574.50	45.00	Do,
25031	New Lisbon to Necedah		6			
MINNESOTA.		2,862.84		285,915.57		
26001	Duluth to Bismarck, Dak	{ 195.12 250 }	3	{ 23,834.80 70.00 }	{ 40.00 70.00 }	
26002	Saint Paul to Breckinridge	216.99	8	8,749.04	40.32	
26003	Saint Paul to Sauk Rapids	76.3	94	4,010.32	52.36	
26004	East Saint Cloud to Melrose	35.06	64	1,363.13	38.38	
26005	Saint Paul to Saint James	122.64	12	9,359.88	76.32	
26006	White Bear Lake to Albert Lea	123.35	94	6,167.50	50.00	Pay estimated on 90.91 miles
26007	Saint Paul to Duluth	155.73	12	9,979.17	64.04	
26008	White Bear Lake to Stillwater	13.2	12	660.00	50.00	
26009	Minneapolis to North McGregor, } Iowa.	{ 147.43 68 }	6	{ 18,637.05 68.40 }	{ 95.00 68.40 }	
26010	Hastings to Glencoe	74.59	6	2,148.19	28.80	
26011	Winona to La Crosse, Wis.	28.75	12	5,426.00	188.80	
26012	Austin to Mason City, Iowa	41.38	12	2,069.00	50.00	
26013	Saint Paul to Winona	103.84	12	14,483.52	178.00	
26014	Saint Peter to Gary, Dak	{ 79.66 30 }	3	{ 4,009.60 21.60 }	{ 41.60 21.60 }	Pay estimated on 40.97 miles.
26015	Winona to Saint Peter	40.97	6	8,308.80	57.60	
26016	La Crosse, Wis., to Winnebago } City, Minn.	{ 144.25 170.49 }	6	{ 8,347.19 36.00 }	{ 49.96 36.00 }	
26017	Manakato to Wells	41.06	6	1,478.16	36.00	
26018	Saint James to Lemars, Iowa	122.83	6	7,075.00	57.60	
26019	Worthington to Luverne	34.61	6	1,245.96	36.00	
26020	Breckinridge to Fisher's Landing	131.09	6	5,449.05	45.00	Pay estimated.
26021	Sauk Rapids to Brainerd	60.96	6	2,743.20	45.00	Do,
IOWA.		9,477.3		149,566.56		
27001	Burlington to Albert Lea, Minn... } Northern.	{ 253.47 99.8 }	6	{ 19,390.45 4,580.92 }	{ 76.50 45.00 }	Pay estimated on 33.93 miles
27002	Cedar Rapids to Postville	50.45	6	2,210.25	45.00	Pay estimated on 25.68 miles.
27003	Cedar Rapids to Holland		6			

B.—Railroad service as in operation on the 30th of June, 1878—Continued.

Number of route.	State and terminal.	Corporate title of company carrying the mail.	Distance.	Total distance in each State.	Number of trips per week.	Annual pay.	Annual pay in each State.	Annual cost per mile on each route.	Remarks.
			Miles.	Miles.		Dollars.	Dollars.	Dollars.	
IOWA—Continued.									
27004	Muscatine to Riverside	Burlington, Cedar Rapids and Northern.	32.23	293.14	6	1,450 35	.....	45 00	
27005	{ Burlington to Council Bluffs } { Branch, Pacific Junction to East Pleasantmouth } Branch, Red Oak to Eastport	Burlington and Missouri River	4	.....	6	58,640 36	.....	36 00	
27006	Clinton to Leam	do	50	.....	6	.....	.....	48 96	
27007	Clinton to Hopkiss, Mo.	do	37.44	.....	6	1,684 80	.....	45 00	
27008	{ Burlington to Unionville, Mo. } { Unionville to Ladysburg, Mo. }	Burlington and Southwestern	44.4	130.5	6	8,588 73	.....	58 50	
27009	Villisca to Clarinda	Burlington and Missouri River	53.02	.....	6	730 00	.....	46 80	
27010	Albia to Northwood	Central Railroad Company of Iowa.	16	161.58	6	10,073 05	.....	45 00	
27011	Keokuk to Burlington	Chicago, Burlington and Quincy	161.58	42.75	12	3,001 05	.....	50 40	
27012	Clinton to La Crosse Junction, Minn.	Chicago, Dubuque and Minnesota.	173.77	.....	12	12,224 36	.....	70 30	
27013	Stanwood to Tipton	Chicago and Northwestern	8.81	.....	6	440 50	.....	68 00	Pay estimated on 53.02 miles.
27014	Davenport to Missouri River	Chicago, Rock Island and Pacific.	54	.....	12	65,305 20	.....	50 00	
27015	{ Des Moines to Indianola. } { Branch, Summeret Junction to Winterset. }	do	264	31.4	12	.....	.....	226 40	
27016	Washington to Oskaloosa	do	37.1	.....	6	2,978 80	.....	201 40	
27017	Wilton Junction to Leavenworth, Kans.	do	54.01	25.23	6	3,585 80	.....	49 50	
27018	Davenport to Maquoketa	Chicago, Rock Island and Pacific.	322.77	.....	6	94,691 91	.....	45 00	Pay estimated on 95.23 miles.
27019	Keokuk to Des Moines	Davenport and Saint Paul	42.76	.....	12	1,924 20	.....	76 50	
27020	Farley to Cedar Rapids	Keokuk and Des Moines	162.81	.....	6	12,373 56	.....	45 00	
27021	Dubuque to Sioux City	Dubuque and Southwestern	55.37	.....	6	2,879 24	.....	76 00	
27022	Waterloo to Mona	Illinois Central	337.12	.....	12	96,440 80	.....	90 00	
27023	Beulah to Elkader	do	80	.....	12	5,840 00	.....	73 00	
27024	Clinton to Anamosa	Iowa Eastern	19.59	.....	6	979 50	.....	50 00	
27025	Calmar to Algona	Iowa Midland	74.1	.....	6	3,705 00	.....	45 00	
27026	Conover to Decorah	Chicago, Milwaukee and Saint Paul.	137.8	.....	6	5,897 68	.....	45 00	
27027	Davenport to Fayette	do	8.5	12	592 50	55 00	
		Davenport and Saint Paul	181.33	6	5,936 95	45 90	

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B.—Railroad service in operation on the 30th of June, 1878—Continued.

Number of route.	State and termini.	Corporate title of company carrying the mail.	Distance.	Total distance in each State.	Number of trips per week.	Annual pay.	Annual pay in each State.	Annual cost per mile on each route.	Remarks.
			<i>Miles.</i>	<i>Miles.</i>		<i>Dollars.</i>	<i>Dollars.</i>	<i>Dollars.</i>	
MISSOURI—Continued.									
28017	Stettin to Lexington	Missouri Pacific	58.35	6	2,531.25	6	75.00	75.00	
28018	Keokuk, Iowa, to Clarksville, Mo.	Saint Louis, Keokuk and North-western.	60.72	6	6,948.90	6	67.50	67.50	
28019	Quincy, Ill., to Kirksville, Mo.	Quincy, Missouri and Pacific	71.26	12	4,134.24	12	69.30	69.30	
28020	Pierce City to Oswego, Kans.	Missouri and Western	47.39	13	5,531.41	13	69.30	69.30	
28021	Branch, Oregon to Joplin	Chicago and Alton	9.33	7	2,277.90	7	45.00	45.00	
28022	Mexico to Cedar City	do	50.62	6	11,655.00	6	124.50	124.50	
28023	Rock House, Ill., to Mexico, Mo.	Saint Louis, Salem and Little Rock.	90.00	12	1,839.60	12	45.00	45.00	
28024	Cuba to Salem	Missouri, Kansas and Texas	40.88	6	2,750.00	6	50.00	50.00	
28025	Holden to Paola, Kans.	Saint Louis, Kansas City and Northern.	55	12	704.70	12	45.00	45.00	Pay estimated on branch.
28026	Salisbury to Glasgow	do	15.66						
28026	Bismarck to Texarkana, Ark.	Saint Louis, Iron Mountain and Southern.	90.24	7	78,603.44	7	230.30	230.30	{ \$10.356 25 per annum included for railway post-office car.
28027	Cairo, Ill., to Poplar Bluff, Mo.	do	324.01	7			181.24	181.24	
28028	Saint Joseph to Hopkins	Kansas City, Saint Joseph and Council Bluffs.	73.73	6	2,654.24	6	36.00	36.00	
28029	Hannibal to Bowling Green	Saint Louis, Hannibal and Keokuk.	61.5	6	3,874.50	6	63.90	63.90	
28030	Saint Joseph to Atchison, Kans.	Hannibal and Saint Joseph	33.09	6	1,340.14	6	40.50	40.50	
28031	Saint Louis to Normandy	West-Port, Narrow Gauge.	22.06	13	1,937.30	13	90.00	90.00	
28032	Atchison, Kans., to Edgerton Junction, Mo.	Chicago, Rock Island and Pacific.	10.53	6	331.69	6	31.50	31.50	
28033	Kansas City to Lexington	Wyandotte, Kansas City and Northwestern.	30	6	2,700.00	6	90.00	90.00	Pay estimated.
28034	Bismarck to Columbus, Ky.	Saint Louis, Iron Mountain and Southern.	43.35	6	1,950.75	6	45.00	45.00	
28035	New Madrid to Malden	do	119.27	6	9,446.18	6	79.20	79.20	
28036	Springfield to Ash Grove	Little River Valley and Arkansas.	27.1	6	1,219.50	6	45.00	45.00	Pay estimated.
		Springfield and Western Missouri.	20.06	6	903.60	6	45.00	45.00	Do.
			3,962.76				547,843.71		
28001	Hopedale to Little Rock	Memphis and Little Rock	134.31	7	12,076.90	7	90.00	90.00	

ARKANSAS.

29002	Helena to Clarendon	Arkansas Central	46 2	.....	6	2, 169 00	.....	45 00	
29005	Argenta to Fort Smith	Little Rock and Fort Smith	{ 125 64	.....	6	10, 077 69	.....	{ 61 30	
29006	Malvern to Hot Springs	Hot Springs	{ 43 65	.....	6	1, 378 53	.....	{ 54 79	
29007	Pine Bluff to Collins	Little Rock, Mississippi River and Texas	{ 25 11	.....	6	4, 524 80	.....	{ 54 90	Pay estimated.
			100 64	477 45	3		30, 523 92	45 00	
LOUISIANA.									
30001	New Orleans to Canton, Miss	New Orleans, Saint Louis and Chicago	206	.....	13	28, 922 40	.....	140 40	
30002	New Orleans to Donaldsonville	New Orleans and Texas	63 66	.....	6	2, 664 70	.....	45 00	Pay per annum included for side supply.
30003	New Orleans to Morgan City	Morgan's Louisiana and Texas Railroad	83	.....	7	6, 973 60	.....	79 20	
30004	Terre Bonne to Houma	Baton Rouge, Grosche T&O and Opelousas	15 98	.....	7	764 00	.....	50 00	
30005	Baton Rouge to Livonia	Clinton and Port Hudson	25	.....	3	504 00	.....	18 00	
30006	Clinton to Port Hudson	West Feliciana	21	.....	3	567 00	.....	27 00	
30007	Saint Francisville to Woodville, Miss		27 57	.....	3	964 95	.....	35 00	
30008	Vicksburg, Miss., to Monroe, La	Vicksburg, Shreveport and Texas	75 5	520 01	7	3, 172 36	41, 733 01	36 72	Pay per annum included for forage and mail-carriage service.
TEXAS.									
31001	Houston to Galveston	Galveston, Houston and Henderson	51 5	.....	19	7, 487 50	.....	145 00	
31002	Harrisburgh to San Antonio	Galveston, Harrisburgh and San Antonio	214 7	.....	12	16, 231 32	.....	75 60	Pay estimated on 59.5 miles.
31003	Houston to Denison City	Houston and Texas Central	{ 155	.....	12	42, 237 50	.....	125 10	
31004	Hempstead to Austin	do	{ 182 55	.....	12	11, 110 32	.....	93 60	
31005	Bremont to Waco	do	{ 18 7	.....	9	3, 246 42	.....	72 80	
31006	Longview to Houston	do	{ 44 56	.....	6	34, 491 25	.....	135 00	
31007	Branch, Minnie to Zavala	International and Great Northern	{ 44 125	.....	6	16, 049 23	.....	50 00	
31008	Branch, Phelps to Huntsville	do	{ 8 5	.....	6	1, 250 00	.....	50 00	
31009	Palacine to Austin	do	{ 183 84	.....	2	19, 717 20	.....	25 00	Pay estimated on 20.88 miles.
31010	Houston to Columbia	Texas and Pacific	{ 40	.....	12	11, 100 00	.....	90 00	
31011	Shreveport, La. to Fort Worth, Tex	do	{ 179 08	.....	6	7, 903 47	.....	150 00	
31012	Marshall to Texasiana, Ark	do	{ 154 97	.....	6	4, 807 80	.....	51 00	Pay estimated on 97.97 miles.
31013	Sherman to Texasiana, Ark	Texas and New Orleans	{ 104 84	.....	6	2, 214 00	.....	45 00	
31014	Houston to Orange	East Line and Red River	{ 40 2	.....	6	969 75	.....	45 00	Pay estimated.
31015	addressee to Pittsburgh	Tyler to Big Sandy	{ 21 55	.....	6	698 85	.....	45 00	Do.
31016	Henderson to Overton	Henderson and Overton	{ 15 53	1, 930 645			179, 486 61	45 00	

B.—Railroad service as in operation on the 30th of June, 1878—Continued.

Number of route.	State and termini.	Corporate title of company carrying the mail.	Distance.	Total distance in each State.	Number of trips per week.	Annual pay.	Annual pay in each State.	Annual cost per mile on each route.	Remarks.
			<i>Miles.</i>	<i>Miles.</i>		<i>Dollars.</i>	<i>Dollars.</i>	<i>Dollars.</i>	
33001	KANSAS. { Kansas City, Mo., to Cheyenne City, Wyo. Branch, Lawrence, to Leavenworth.	Kansas Pacific	{ 745 33 }	.....	{ 9 7 }	{ 105,259 50 9,000 00 }	.....	{ 137 70 81 00 }	
33002	Atchison to Waterville.....	Central Branch Union Pacific	100	.....	7	9,000 00	.....	90 00	
33003	Lawrence to Coffeyville.....	Leavenworth, Lawrence and Galveston.	{ 142 9 10 }	.....	6	9,558 14	.....	{ 63 38 50 40 }	
33004	Branch, Cherry Vale to Independence.	.....	227 2	.....	6	9,487 87	.....	41 76	
33005	Atchison to Hurlingham, Nebr.	Saint Joseph and Denver City	160 2	.....	13	18,166 67	.....	113 40	
33006	Branch, Cherry Vale to Baxter Springs, Kans.	Missouri River, Fort Scott and Gulf.	156 5	.....	6	6,535 44	.....	41 76	
33007	Junction City to Parsons.....	Missouri, Kansas and Texas	{ 470 41 148 15 }	.....	{ 6 6 }	{ 72,974 43 3,206 79 }	.....	{ 108 00 80 10 }	Pay from Olathe to Ottawa.
33008	Atchison to Pueblo, Colo.....	Atchison, Topeka and Santa F6	33 0	.....	6	3,206 79	.....	96 30	
33009	Branch, Newton to Wichita.....	Leavenworth, Lawrence and Galveston.	152 28	.....	7	11,421 00	.....	75 00	Pay estimated on 37.70 miles.
33010	Atchison to Lincoln, Nebr.....	Kansas Central	84 26	.....	6	4,213 00	.....	50 00	
33011	Leavenworth to Onaga.....	Junction City and Fort Kearney	51 32	.....	6	2,771 28	.....	129 00	
33012	Junction City to Clifton.....	Atchison, Topeka and Santa F6	68 64	.....	6	8,921 66	.....	31 50	Pay estimated; \$100 per annum included for mail-messenger service.
33013	Topeka to Kansas City, Mo.....	Fort Scott, Southeastern and Memphis.	12 82	.....	6	5,021 83	.....	36 00	Pay estimated on 38.84 miles.
33014	Fort Scott to Arcadia.....	Kansas City, Burlington and Santa F6	47 22	.....	6	1,699 92	.....	45 00	Pay estimated.
33015	Ottawa to Burlington.....	Joplin	34 56	.....	6	1,555 20	.....	45 00	Pay estimated.
33016	Girard to Joplin, Mo.....	Atchison, Topeka and Santa F6	31 05	.....	6	1,397 25	.....	45 00	Pay estimated.
33017	Florence to El Dorado.....	Waterville and Washington	20 4	.....	6	918 65	.....	45 00	Do
33018	Greenleaf to Concordia.....	Republican Valley	41 97	.....	6	1,448 65	.....	310 00	
33019			2,798 47	.....			289,478 03		
34001	NEBRASKA. Council Bluffs, Iowa, to Ogden City, Utah.	Union Pacific	1,035 2	.....	7	380,912 00	.....	

34002	Plattsmouth to Kearney	191	.....	6	12,033 00	.....	63 00
34003	Omaha to Tekama	{ 40.9	.....	6 {	2,352 00	.....	{ 50 00
34004	Omaha to Orepolis Junction	{ 7.6	.....	6 {	1,197 45	.....	{ 45 00
34005	Brownville to York	128.19	.....	6	6,777 76	.....	51 30
34006	Credo to Beatrice	31.76	.....	6	1,429 20	.....	45 00
34007	Covington to Pouce	98.51	.....	6	1,192 95	.....	45 00
34008	Valley to David City	61.29	1,543.42	6	2,758 05	344,652 41	45 00
35001	Sioux City, Iowa, to Yankton, Dak.	61.49	.....	6	4,426 56	4,426 56	72 00
COLORADO.							
36001	Denver to El Moro	{ 209.9	.....	7 {	23,113 36	.....	{ 100 00
36002	Branch, Pueblo to Canon City	{ 4.5	.....	6 {	1,873 13	.....	{ 45 00
36003	Hughes Station to Boulder	{ 27.75	.....	6 {	1,873 13	.....	{ 45 00
36004	Denver to Colorado Junction	{ 28.62	.....	7 {	10,072 55	.....	{ 54 00
36005	Branch, Golden Junction to	{ 72.8	.....	7 {	10,072 55	.....	{ 43 00
36006	Georgetown	{ 24.22	.....	7 {	10,072 55	.....	{ 43 00
36007	Branch, Forks Creek to Black	{ 13.5	.....	7 {	10,072 55	.....	{ 43 00
36008	Hawk	{ 7.9	.....	7 {	10,072 55	.....	{ 43 00
36009	Cuchama to La Veta	32.35	481.54	6	1,014 75	36,072 79	45 00
UTAH TERRITORY.							
41001	Ogden City to Salt Lake City	36.5	.....	6	2,956 50	.....	81 00
41002	Salt Lake City to York	46	.....	6 {	3,985 90	.....	{ 36 70
41003	Ogden City to Franklin, Idaho	79.94	.....	7	5,036 22	.....	46 40
41004	Sandy Station to Bingham Canyon	52.5	.....	6	911 25	.....	63 00
41005	Salt Lake City to Stockton	40.5	254.44	6	1,822 50	14,711 67	40 50
WASHINGTON TERRITORY.							
43001	Kalama to Wilkeson	135.79	.....	6	7,085 25	.....	54 00
43002	Seattle to Renton	13.78	149.57	6	920 10	7,705 35	45 00

Pay estimated on 26.27 miles.

Pay estimated.

Pay estimated.

Pay estimated.

Pay estimated on 30.19 miles.

Pay estimated.

B.—Railroad service as in operation on the 30th of June, 1878—Continued.

Number of route.	State and terminal.	Corporate title of company carrying the mail.	Distance. Miles.	Total distance in each State.	Number of trips per week.	Annual pay. Dollars.	Annual pay in each State. Dollars.	Annual cost per mile on each route.	Remarks.
OREGON.									
44001	Portland to Roseburg.	Oregon and California	199.1		6	17,919 00		Dollars. 90 00	
44002	Portland to Saint Joseph.	Oregon Central	48.61	347.71	6	2,187 45	20,106 45	45 00	
NEVADA.									
45001	Virginia City to Reno.	Virginia and Truckee.	51.75		6	3,726 00		72 00	
45002	Eureka to Palisades.	Eureka and Palisades.	91.37	143.02	6	5,565 72	9,311 72	61 30	
CALIFORNIA.									
46001	San Francisco to Ogden City, Utah.	Central Pacific	884.23		7	238,399 98		989 50	
46002	San Francisco to Soledad.	Southern Pacific	143.8		14	9,199 86		57 60	
46003	Branch, Gilroy to Tres Pinos.	Central Pacific	20.2		7	18,401 17		45 00	
46004	Reeseville to Redding.	Placerville and Sacramento Valley	151.45		7	1,264 05		47 70	
46005	Sacramento City to Yuba City.	Sacramento Valley	26.5		12	1,419 84		61 20	
46006	Sacramento City to San Francisco.	California Pacific	23.2		14	7,102 37		81 90	
46007	Davisville to Graton.	do.	66.72		6	619 00		50 00	
46008	Napa Junction to Calistoga.	do.	16.38		6	1,620 00		45 00	
46009	Mariposa to Grosville.	California Northern	36		6	1,350 00		45 00	
46010	Mariposa to Grosville.	Central Pacific	144.91		6	10,433 52		72 00	
46011	San Francisco to El Centro.	San Francisco and North Pacific	90		6	6,075 00		67 50	
46012	Stockton to El Centro.	Stockton and Copperopolis	30		6	2,905 00		45 00	
46013	Branch, Paterson to Oakland.	Southern Pacific	19		6	783 00		36 00	
46014	Huron to Yuma, Ariz.	do.	21.75		6	23,963 05		45 00	
46015	Elmira to Madison.	Vaca Valley	530.29		6	1,905 00		45 00	
46016	Saucelito to Duncan's Mills.	North Pacific Coast	29		12	3,370 75		54 90	
46017	Branch, San Anselmo to San Quentin.	do.	5.5		6			45 00	
46018	Los Angeles to Santa Ana.	Southern Pacific	98.6		6	1,544 40		54 00	
46019	Malibu to Grosville.	do.	8.37		6	378 05		45 00	
46020	Colfax to Nevada City.	Nevada County Narrow Gauge	22.51		6	1,129 09		45 00	

Pay estimated.
Pay estimated on 11 miles.
Pay estimated from Tomales
to Duncan's Mills.
Pay estimated on 9.9 miles.

	No.	Total	Average	% Pay estimated.
Los Angeles to Santa Monica.....	6	604 80	.....	36 00
Santa Cruz to Van Nuys.....	6	1 073 60	.....	45 00
Van Nuys to Northridge.....	6	1 757 40	.....	45 00
Califurnia to Northridge.....	6	1 757 40	.....	45 00
Guthrie Branch.....	6	1 259 80	.....	D.O.
West Oakland to Martinez.....	6	1 511 10	.....	45 00
Santa Cruz to Felton.....	6	1 376 65	.....	D.O.
Santa Cruz and Felton.....	6	609 30	.....	D.O.
Central Pacific.....	6	724 05	.....	45 00
San Francisco and Northern.....	6	.....	.....	45 00
Fulton to Guerneville.....	6	.....	.....	D.O.
Total.....	2,608.61	339,446 55		

THOS. J. BRADY,
Second Assistant Postmaster-General.

C.—Steamboat service as in operation on the 30th of June, 1878.

Number of route.	State and termini.	Name of contractor.	Distance.	Total distance in each State.	Number of trips per week.	Annual pay.	Annual pay in each State.	Remarks.
	MAINE.		Miles.	Miles.		Dollars.	Dollars.	
250	(Bath to Booth Bay Wiscasset to Booth Bay)	Eastern Steamboat Company	16 20	6	6	700 00		{ During season of navigation, from about April 1 to November 30, twelve times a week from July 5 to September 30, and six times a week residue of season, from about December 1 to March 31.
294	Portland to Chebeague.....	Portland and Harpawell Steamboat Company.	11	6	6	299 00		Four months, June 1 to September 30.
350	Greenville to Indian Rock.....	C. W. Howard	10	6	6	200 00		
351	Boston, Mass., to Eastport.....	Charles Deering	330	3	3	500 00		
352	Boston, Mass., to Machiasport.....	do	334	3	3	700 00		
353	Rockland to Sullivan.....	do	78	6	6	300 00	2,619 00	
	NEW HAMPSHIRE.							
1101	Alton Bay to Meredith Village.....	William M. Ashley	10 25	6 3	6 3	2,000 00	2,000 00	{ During season of navigation, say five months.
3127	Wood's Holl to Nantucket.....	Nantucket and Cape Cod Steamboat Company.	30	30		3,500 00	3,500 00	Six times a week, four months; three times a week, eight months.
	RHODE ISLAND.							
4101	Fall River, Mass., to New York, N. Y.....	Old Colony Steamboat Company.....	186			10,000 00		Seven times a week, three months; six times a week, nine months.
4102	Newport to Wickford Landing.....	Newport and Wickford Railroad and Steamboat Company.	12	198	18	6,000 00	16,000 00	
	NEW YORK.							
6249	Plataburgh to Burlington, Vt.....	E. Smith	23			939 00		Six times a week, eight months.
6345	Pan Yan to Hammondport.....	Lake Kenka Steam Navigation Company.	21			959 61		Six times a week, six months.
6683	Lake George to Fort Ticonderoga.....	Champlain Transportation Company..	40			375 00		Six times a week, three months.

Line No.	Company Name	Capital	Surplus	Total	Assets	Liabilities	Net Worth
6594	Harlem River to Jersey City	114	3	117	1,900 00	1,900 00	0
6687	Brooklyn to Jersey City	114	3	117	1,945 00	1,945 00	0
	NEW JERSEY.						
7026	New York to Sandy Hook	19, 60		19, 60	1,305 36	1,305 36	0
	PENNSYLVANIA.						
8151	Pittsburgh to Greensburgh	88 1/2		88 1/2	5,500 00	5,500 00	0
	MARYLAND.						
10099	Baltimore to Freeport	200		200	1,800 00	1,800 00	0
10100	Baltimore to Cambridge	18 1/2		18 1/2	1,800 00	1,800 00	0
10101	Baltimore to Wilson's Wharf	110		110	4,200 00	4,200 00	0
10102	Baltimore to Queenstown	40		40	750 00	750 00	0
	VIRGINIA.						
11094	Washington to Norfolk, &c.	281		281	7,000 00	7,000 00	0
11095	West Point to Baltimore	200		200	1,800 00	1,800 00	0
11096	Norfolk to Baltimore	200		200	1,800 00	1,800 00	0
11097	Norfolk to Eastville	50		50	3,500 00	3,500 00	0
11098	Norfolk to Matthews C. H.	86		86	3,000 00	3,000 00	0
11099	Norfolk to Richmond	151		151	4,500 00	4,500 00	0
11100	Fredericksburgh to Baltimore	28 1/2		28 1/2	2,600 00	2,600 00	0
	WEST VIRGINIA.						
12098	Wheeling to Parkersburgh	96		96	8,000 00	8,000 00	0
12099	Parkersburgh to Gallipolis, Ohio.	87 1/2		87 1/2	5,200 00	5,200 00	0
12100	Kanawha C. H. to Gallipolis	62		62	2,600 00	2,600 00	0
	NORTH CAROLINA.						
13096	Norfolk to Poplar Branch	75		75	1,383 00	1,383 00	0
13097	Plymouth to Franklin	106		106	4,217 00	4,217 00	0
13098	Plymouth to Windsor	30		30	999 00	999 00	0
13099	Wilmington to Smithville	24		24	2,199 00	2,199 00	0
13100	Wilmington to Fayetteville	114		114	1,175 00	1,175 00	0

**{ May 1 to December 31.
July 1 to April 30.**

C.—Steamboat service as in operation on the 30th of June, 1878—Continued.

Number of route.	State and termini.	Name of contractor.	Distance.	Total distance in each State.	Number of trips per week.	Annual pay.	Annual pay in each State.	Remarks.
			<i>Miles.</i>	<i>Miles.</i>		<i>Dollars.</i>	<i>Dollars.</i>	
	SOUTH CAROLINA.							
14099	Charleston to Moultrieville	Zimri McDonald	7½		7	481 07		
14100	Charleston to Edisto Island	Peter Toglio	43	504	1	800 00	1,281 07	
	GEORGIA.							
15100	Rome to Gadaden	James M. Elliott	155	155	2	3,600 00	3,600 00	
	FLORIDA.							
16087	Jacksonville to Fort George	James M. Fitzgerald	30		3	600 00		
16088	Milton to Warrington	Samuel Rushing	39		3	3,200 00		
16090	Palatka to Crescent City	John R. Rhoades	30		2	1,000 00		
16091	Cedar Keys to Key West	New Orleans, Florida and Havana Steamship Company.	360		3	53,500 00		
16092	Fernandina to Traders' Hill, Ga.	H. L. Hart	10		4	2,768 00		
16093	Pensacola to Freeport	John L. McKinnon	84		2	1,938 00		
16096	Palatka to Oklawaha	Sidney L. Bouknight	275		2	2,400 00		
16097	Jacksonville to Sanford	Z. M. Sherley and W. E. Hight	81 146½ 8			16,979 20		Twice a week four months; once a week eight months. (Six times a week to Palatka, 81 miles; six times a week to Sanford, 146½ miles; three times a week the residue of the year to Sanford, with three times a week side supply to Spring Grove, 8 miles.)
16098	Enfanta, Ala. to Apalachicola	Samuel J. Whitesides	291		2	5,401 39		
16100	Cedar Keys to Tampa	James McKay	175	1,687½	2	13,570 00	100,357 50	
	ALABAMA.							
17085	Gadaden to Olin	I. M. Elliott	30		1	348 39		
17096	Chattanooga, Tenn., to Decatur	Solomon C. Capohart and George A. Hamelin.	297½		1	9,890 00		

17097	Mobile to Demopolis.....	Frank S. Stone.....	243	.....	2	5,500 00	.....
17098	Mobile to Selma.....	Owen Finnegan.....	310	.....	2	2,500 00	.....
17099	Mobile to Point Clear.....	H. C. Baldwin.....	30	.....	.....	1,500 00	.....
MISSISSIPPI.							
18098	Greenwood to Sharkey.....	S. H. Parisot.....	110	.....	1	1,200 00	.....
18099	Vicksburg to Faisonla.....	do.....	240	.....	1	2,000 00	.....
18100	Vicksburg to Greenwood.....	do.....	266	.....	2	4,800 00	.....
LOUISIANA.							
30091	New Orleans to Washington.....	H. H. Broad.....	490	.....	2	6,500 00	.....
30092	New Orleans to Shreveport.....	New Orleans and Red River Transportation Company.....	660	.....	1	15,000 00	.....
30093	New Orleans to Vicksburg.....	Leathen, Tobin and Cannon.....	408	.....	3	25,000 00	.....
30095	New Orleans to Hopeville.....	Milton B. Muney.....	119	.....	1	3,000 00	.....
30097	Morgan City to New Iberia.....	Monroe P. Young.....	74	.....	6	6,000 00	.....
30098	New Orleans to Saint Francisville.....	John J. Brown.....	170	.....	3	10,000 00	.....
30099	New Orleans to Covington.....	Mandeville and New Orleans Daily Packet Company.....	63	.....	3	3,550 00	.....
30100	New Orleans to Port Eads.....	William S. Bassett.....	{ 116 45 }	.....	{ 6 1 }	10,000 00	.....
TEXAS.							
31092	Morgan City, La., to Brazos Santiago.....	Charles Morgan.....	465	.....	.....	4,800 00	.....
31096	Galveston to Morgan City, La.....	do.....	225	.....	.....	50,000 00	.....
31097	Galveston to Indianola.....	do.....	125	.....	.....	10,000 00	.....
MISSOURI.							
28099	Saint Louis to Grand Tower.....	John A. Scudder.....	125	.....	3	1,250 00	.....
28100	Saint Louis to Memphis.....	do.....	450	.....	3	25,000 00	.....
ARKANSAS.							
29094	Camden to New Orleans.....	John D. Adams.....	718	.....	1	40,000 00	.....
29095	Memphis to Wittenburg.....	do.....	116	.....	1	7,500 00	.....
29096	Jacksonport to Peabokhan.....	do.....	150	.....	2	8,800 00	.....
29097	Memphis to Osceola.....	do.....	74	.....	2	6,800 00	.....
29098	Memphis to Vicksburg.....	S. S. Lee.....	409	.....	2	17,400 00	.....
29100	Memphis to Friar's Point.....	James Lee, sr.....	113	.....	3	2,000 00	.....

Seven times a week two months;
twice a week eight months.

11,908 39

9,000 00

616

840

2,074

815

575

26,250 00

64,800 00

90,050 00

10,000 00

1,250 00

25,000 00

40,000 00

7,500 00

8,800 00

6,800 00

17,400 00

Two trips a month.
Three times a week six months; six
times a week six months.
Three times a week eight months;
twice a week four months.

Two trips a month.
Three times a week six months; six
times a week six months.
Three times a week eight months;
twice a week four months.

C.—Steamboat service as in operation on the 30th of June, 1878—Continued.

Number of route.	State and terminal.	Name of contractor.	Distance.	Total distance in each State.	Number of trips per week.	Annual pay.	Annual pay in each State.	Remarks.
29103	White River to Pine Bluff	John D. Adams	182½	.....	6	5,000 00	.....
29104	Pine Bluff to Little Rock .....	.....	105	.....	2	2,000 00	.....
29105	White River to Jacksonport	M. R. Harry	336	2,222.5	2	5,000 00	94,600 00	
TENNESSEE.								
19093	London to King's Creek	Thomas W. Fritts	47	.....	6	2,468 00	.....
19099	Chattanooga to King's Creek	Joseph Glover	110	157	2	1,640 00	4,106 00	
KENTUCKY.								
29096	Louisville to Cincinnati	United States Mail Line Company	143	.....	6	8,000 00	.....
29097	Louisville to Evansville	Shirley and Hite	202	.....	6	15,000 00	.....
29098	Evansville to Cairo	John D. Hopkins, President Evansville, Cairo and Memphis Packet Company	202	.....	6	15,000 00	.....
29099	Bowling Green to Evansville	S. W. Coombe, President Green and	198	.....	2	4,800 00	.....
29100	Paducah to Waterloo, Ala	Barren River Navigation Company	260	1,005	2	6,000 00	48,800 00	
OHIO.								
21141	Portsmouth to Cincinnati	David Gilbeon	127.75	.....	6	9,000 00	.....
21142	Portsmouth to Gallipolis	William Bay	{ 51.35 36.65	915.75	12 } 6 }	8,500 00	17,500 00	
MICHIGAN.								
24093	L'Anse to Hancock	R. M. Hoer	35.33	.....	6	3,000 00	.....
24094	Keniloe to Milwaukee	Engelman Transportation Company	150	.....	6	4,160 00	.....
24097	Detroit to Marquette	J. T. Whiting	{ 250 150	.....	5 } 2 }	4,928 56	.....	Service during season of navigation (April 1 to December 1.)
24098	Houghton to Minour	S. L. Smith	80	.....	1	1,213 33	.....	Do. Do.

		Darins Cole. M. Engelmann	187.50 85	973.83	6 6	10,000 00 3,190 00	..... 25,721 90	Lb. Lb.
24099 24100	Bay City to Alpena. Grand Haven to Milwaukee							
	CALIFORNIA.							
46101 46103 46273 46275	San Francisco to Portland, Ore. San Francisco to Sacramento San Francisco to La Quentin. Tahoe to Tahoe.	George K. Olla California Steam Navigation Company A. D. Moore W. W. Lapham	670 220 13 50.5		1 6 7	25,000 00 8,000 00 1,100 00 3,000 00	..... 37,100 00	Six times a week six months; once a week six months.
44101 44102	Portland to Astoria. Portland to The Dalles	I. C. Almsworth, President Oregon Steam Navigation Company. Zenas F. Moody	190 190		6 6	14,906 83 15,535 00	..... 30,441 83	
	WASHINGTON TERRITORY.							
43101 43115 43122	Olympia to Victoria, British Columbia. Port Townsend to Semiahmoo. Portland to Sitka, Alaska.	Phillip D. Moore Samuel Conlier George K. Olla	35 103.6 132 1,366		2 6 1	39,676 74 5,013 95 34,800 00	..... 69,490 69	One trip per month.
35072	Yankton to Fort Pierre.	S. B. Conlson	375	375	2	7,590 00	..... 7,590 00	Temporary, four months.
	DAKOTA TERRITORY.							

THOS. J. BRADY.
Second Assistant Postmaster-General.

D.—Table showing the increase and decrease in mail transportation and cost during the year ended June 30, 1878.

States and Territories.	CELEBRITY, CERTAINTY, AND SECURITY.				STEAMBOAT.				RAILROAD.				Total annual transportation.		Total annual cost.	
	Length of routes.		Cost.		Length of routes.		Cost.		Length of routes.		Cost.		Increase.	Decrease.	Increase.	Decrease.
	Miles.	Decrease.	Dollars.	Increase.	Miles.	Decrease.	Dollars.	Increase.	Miles.	Decrease.	Dollars.	Increase.				
Maine.....	92		5,534		747		1,799				16,133				19,888	
New Hampshire.....	211		9,015		25		150		3		5,019				9,847	
Vermont.....	38		3,753		15		1,000		140		401				3,352	
Massachusetts.....	208		7,835								26,905				17,370	
Rhode Island.....	27		1,720						7		9,365				635	
Connecticut.....	57		21,706						4		27,303				26,150	
New York.....	263		2,933		64		134		15		145,353				123,093	
New Jersey.....	15		31,175		1		800		95		433,129				36,044	
Pennsylvania.....	330		4,737						122		41,465				11,080	
Delaware.....	10		4,737		196		1,800				1,647				9,590	
Maryland.....	13		20,088		31		200		6		671				9,966	
West Virginia.....	347		8,530						28		154				18,143	
Virginia.....	228		17,558						1		4,945				13,925	
North Carolina.....	100		4,850						62		9,819				30,370	
South Carolina.....	312		12,430						35		9,102				6,959	
Georgia.....	96		6,509								13,673				26,102	
Florida.....	384		16,367		840		24,919		2		59				31,487	
Alabama.....	41		5,596				11,908				107				58,389	
Mississippi.....	48		143,925		1,080		27,936		28		1,172				76,283	
Louisiana.....	729		11,350		81						650				95,904	
Texas.....	458		10,977						82		10,959				59,111	
Arkansas.....	626		13,793						50		4,161				149,448	
Missouri.....	554		10,595		2		8,000		90		83,946				15,511	
Tennessee.....	316		2,401		116		3,507		8		3,800				103,925	
Kentucky.....	46		20,983								17,130				9,994	
Ohio.....	9		16,985		166		6,500		176		67,886				33,776	
Indiana.....	329		1,556						200		29,956				33,099	
Illinois.....	142		1,556						141		13,001				134,297	
Michigan.....	80		1,556						28		4,430				95,825	
Wisconsin.....	162		1,556						96		2,223				4,079	
Iowa.....	356		23,572						24		10,140				760,883	
Minnesota.....	93		3,967						305		12,807				356,703	
Nebraska.....									68		3,210				14,563	
Kansas.....									189		33,403				18,036	
															130,465	
															36,670	

Nevada	59	14,584					1,479					21,948	13,075
California	13	13,935					19,384					3,449	
Oregon	237	2,873						459				2,419	
Washington Territory	172	7,063										2,873	
Idaho Territory	473		179					6,410				2,876	
Montana Territory	469	32,346											23,946
Dakota Territory	97	44,373										44,375	
Wyoming Territory	34	21,435	375					7,580				26,015	
Utah Territory		12,638										12,638	
Colorado	25	70										1,792	12,638
Indian Territory	44	13,508						40				1,792	
New Mexico Territory	470	7,366						40				16,337	
Arizona Territory	430	170,451										7,366	170,451
	290	12,807										475,790	
												37,544	
Total	7,931	426,765	3,173	3,537	3,173	96,283	584,315	12,769	2,686	12,086,760	1,954,636	972,792	383,666
	1,743	375,792	3,173	3,173		12,769	71,556		112	1,954,636		383,666	
Increase	6,188	50,973		394		85,494	512,659		2,574	10,632,124		649,126	

THOS. J. BRADY,
Second Assistant Postmaster-General.

E.—Table showing the weight of the mails, the speed with which they are conveyed, the amount on railroad-routes in States in which the contract-term expired June 30, 1878, and also in of the pay in accordance with the act of March 3, 1873; and used also in accordance with after July 1, 1876.

ABBREVIATIONS.—f. f., fixtures and furniture; f. f. c., fixtures and furniture complete; m. c., mail-line; t. l., triple line; l., line or lines; m., miles; r. a., route-agents; m. m., mail-messengers. A the "Remarks" column refer to the order of the routes in this table.]

Order.	State.	Number of route.	New number of route.	Termini.	Corporate title of company carrying the mail.	Length of route.	Miles per hour.
1	N. J.	7004		New York, West Philadelphia.	Pennsylvania.	Miles. 90	32
2	Pa.	8001		Philadelphia, Pittsburg.	do.	353.6	30
3	N. Y.	6052		Buffalo, Chicago.	Lake Shore and Michigan Southern.	542	28
4	N. Y.	6052		Millbury, Toledo.	do.	8.5	28
5	N. Y.	6052		Buffalo, Elyria.	do.	210.2	28
6	N. Y.	6052		Elkhart, Chicago.	do.	101	28
7	N. Y.	6052		Elyria, Millbury.	do.	78.3	28
8	N. Y.	6017		Albany, Buffalo.	New York Central and Hudson River.	298	29
9	N. Y.	1217	6017	do.	do.	298	25
10	N. Y.	6011		New York, Albany.	do.	144	30
11	N. Y.	1211	6011	do.	do.	144	25
12	Ohio	21045		Toledo, Elkhart.	Lake Shore and Michigan Southern.	133.6	28
13	Md.	10001		Baltimore, Philadelphia.	Philadelphia, Wilmington and Baltimore.	96	33
14	Md.	10013		Bayview, Washington.	Baltimore and Potomac.	46.10	27
15	Ohio	21007		Elyria, Millbury.	Lake Shore and Michigan Southern.	74.98	28
16	N. Y.	6001		New York, Dunkirk.	Erie.	459	30
17	Mo.	28001		Saint Louis, Atchison.	Missouri Pacific.	329.75	25

modations for mails and agents, the trips per week, and the rates of pay per mile per annum, other States and Territories, the returns having been obtained with a view to the readjustment the acts of July 12, 1876, and June 17, 1878, in the case of readjustments taking effect on and

catchers: r. p. o., railway post-office; apt., apartment; b. c., baggage-car; a. l., single line; d. l., double line; number followed by an asterisk (*) shows the equivalent in round trips. The figures in parentheses in

Whole weight carried any distance for thirty days.			Average weight carried whole distance.		Size, &c., of mail-car or apartment.	Trips per week.	Pay per mile per annum.	Remarks.	Order.
Outward.	Inward.	Total.	30 days, total.	Per day, total.					
Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Feet and inches.	Dolla.			
3185365	1374224	4559789	4285449	71424	r. p. o., 60 by 8.11, 4.1.; 58.7 by 8.8, 1.1.; 46.4 by 8.4, 2.1.; 18 by 8.4, 1.1.; r. a. apt., 14.6 by 6.4, 1.1., f. f. c.	884*	1155 40	60 days in March and April, 1878. Main route; branches not weighed.	1
270911	999366	3870277	3063182	51053	r. p. o., 60 by 8.4, 1.1.; r. a. apt., 15 by 8.1, 1.1., f. f. c.	443*	805 60	60 days in March and April, 1878.	2
5062908	2018546	7081454	1817551	30292		363*		60 days in March and April, 1878. (See p. 4)	3
			2566296	42771	r. p. o., f. f. c., 60 by 9, 1.1.; 50 by 9, 1.1.; 49 by 9, 1.1.; 60 by 9, 1.1.; 50 by 9, 1.1.; 49.5 by 9, 1.1.; 41.8 by 9, 1.1.; 16 by 9, 1.1.	363*	719 75	60 days in March and April, 1878. Part: residue, \$708.50 (5), \$665.30 (6), \$649.12 (7), \$251.80 (22).	4
			2794075	46567	r. p. o., 60 by 9, 1.1.; 50 by 9, 1.1.; 49 by 9, 1.1.; 60 by 9, 1.1.; 50 by 9, 1.1.; 49.5 by 9, 1.1.; 41.8 by 9, 1.1. (average), 1.1.; 16 by 9, 1.1.	363*	708 50	60 days in March and April, 1878. Part: 25.7 miles at \$719.75; residue, \$719.75 (4), \$665.30 (6), \$649.12 (7), \$251.80 (22).	5
			2003603	33398	r. p. o., f. f. c., 60 by 9, 1.1.; 50 by 9, 1.1.; 49 by 9, 1.1.; 60 by 9, 1.1.; 50 by 9, 1.1.; 49.5 by 9, 1.1.; 41.8 by 9, 1.1. (average), 1.1.; 36 by 9, 1.1.	363*	665 30	60 days in March and April, 1878. Part: residue, \$719.75 (4), \$708.50 (5), \$649.12 (7), \$251.80 (22).	6
			963878	16064	r. p. o., f. f. c., 60 by 9, 1.1.; 50 by 9, 1.1.; 49 by 9, 1.1.; 41.8 by 9, 1.1.; 16 by 9, 1.1.	363*	649 12	60 days in March and April, 1878. Part: residue, \$719.75 (4), \$708.50 (5), \$665.30 (6), \$251.80 (22).	7
3309976	1105933	4415009	3101112	51685	r. p. o., f. f. c., 55 by 9 (av.), 1.1.; 49.5 by 9, 2.1.; 60 by 9, 1.1.; 50 by 9, 1.1.; 41.9 by 9, 1.1.; 47.8 by 8.10, 1.1. Albany to Rochester, 228 m.	464*	592 50	60 days in March and April, 1878.	8
2193111	984326	3177437	2342970	39049	r. p. o., 46.10 by — (av.), f. f. c., s. l.	137*	590 70	60 days in February and March, 1877.	9
2387842	936849	3324691	2957275	49287	r. p. o., 55 by 9 (av.), 1.1.; 49.5 by 9, 2.1.; 60 by 9, 1.1.; 50 by 9, 1.1.; 41.9 by 9 (average), 1.1.	563*	568 20	60 days in March and April, 1878. Part: residue not weighed.	10
1790814	751952	2542766	2210372	36840	r. p. o., 46.10 by — (av.), f. f. c., s. l.	151*	568 20	60 days in February and Mar., 1877. Part: residue not weighed; 6 miles at \$168.30.	11
1046566	485479	1332045	1442375	24039	r. p. o., f. f. c., 50 by 9, 1.1.; 60 by 9, 1.1.; 49.5 by 9, 1.1.; 50 by 9, 1.1.; 60 by 9, 1.1.; 49.5 by 9, 1.1.; 41.8 by 9 (average), 1.1.	104*	560 20	60 days in March and April, 1878.	12
380892	462863	843755	740288	24676	r. p. o., 50 by 9, f. f. c., d. l.	363*	492 90	In March, 1877. Main route; branch, \$45.	13
456595	426235	882920	767038	15567	r. p. o., 45.10 by 8.8, 47 by 8.4, 46.3 by 8.7, 58 by 8.8, f. f. c., d. l.; r. a. apt., 14.8 by 8.7, f. f. c., a. l.	411*	393 90	In March, 1877.	14
1281645	373956	1655601	1616621	26943	r. p. o., f. f. c., 60 by 9, 1.1.; 50 by 9, 1.1.; 49 by 9, 1.1.; 60 by 9, 1.1.; 50 by 9, 1.1.; 49.5 by 9, 1.1.; 16 by 9, 1.1.	13*	364 02	60 days in March and April, 1878.	15
764901	430966	1195867	459548	7659	r. p. o., 50 by 10, f. f. c., d. l. to Hornellsville, 332 m., a. l. res., 127 m.; r. a. apt., 16.84 by 7.43, f. f. c., a. l.	214*	341 90	60 days in March and April, 1878. \$301.90 for 127 miles.	16
421970	171251	593221	354741	11824	r. p. o., 50 by 9, f. f. c., d. l. 282 m., a. l. res., 47.75 m.	141*	323 90	37 m. at \$275.12; 47.75 m. at \$283.90. In October, 1877.	17

E.—Table showing the weight of the mails, the speed with which they

Order.	State.	Number of route.	New number of route.	Termini.	Corporate title of company carrying the mail.	Length of route.	Miles per hour.
						<i>Miles.</i>	
18	Nebr.	34001	34001	Council Bluffs, Ogden	Union Pacific	1035.2	19
19	Mass.	601	3001	Boston, Portsmouth	Eastern	57.28	26
20	Me	129	9	Portland, Portsmouth	do	52.56	26
21	Cal	48001	48001	San Francisco, Ogden	Central Pacific	884.23	19
22	N. Y.	6052		Toledo, Elkhart	Lake Shore and Michigan Southern.	143	28
23	Ohio	21002		Pittsburg, Chicago	Pittsburg, Fort Wayne, and Chicago.	468.85	av. 25
24	Mo	28005		Quincy, Saint Joseph	Hannibal and Saint Joseph	203.50	20
25	Mo	28010		Kansas City, Cameron	do	54	20
26	Mass.	603	3016	Boston, Nashua	Boston and Lowell and Nashua and Lowell.	39.87	25
27	N. Y.	6008		Buffalo, Hornellsville	Erie	91	30
28	Mo	28002		Saint Louis, Bismarck	Saint Louis, Iron Mountain and Southern.	77.73	23
29	Vt.	403	2002	Windsor, Burlington	Central Vermont	119.87	25
30	Mass.	604	3021	Boston, Fitchburg	Fitchburg	51.73	28
31	Mass.	602	3011	Boston, Salmon Falls	Boston and Maine	71.50	30
32	Vt.	401	2001	Burlington, Rouse's Point ..	Central Vermont	57.15	25
33	Vt.	405	2004	Bellows Falls, Windsor	do	26.34	25
34	Kans	33001		Kansas City, Cheyenne	Kansas Pacific	745	24
35	N. Y.	1218	6018	Rochester, Niagara Falls ...	New York Central and Hudson River.	76	24
36	Vt.	406	2003	Bellows Falls, Burlington ...	Central Vermont	120.27	25
37	Pa.	8077	8075	Easton, Allentown	Lehigh Valley	17.2	25
38	Minn.	26011		Winona, La Crosse	Chicago, Milwaukee and Saint Paul.	28.75	20
39	Mo	28014		Hannibal, Sedalia	Missouri, Kansas and Texas ..	142.88	21
40	Mo	28026		Bismarck, Texarkana	Saint Louis, Iron Mountain and Southern.	414.25	23
41	Mo	28011		Sedalia, Denison	Missouri, Kansas and Texas ..	447	21
42	Mass.	646	3022	Fitchburg, North Adams	Fitchburg	93.10	28

are conveyed, the accommodations for mails and agents, &c.—Continued.

Whole weight carried any distance for thirty days.			Average weight carried whole distance.		Size, &c. of mail-car or apartment.	Trips per week.	Pay per mile per annum.	Remarks.	Order.
Outward.	Inward.	Total.	30 days, total.	Per day, total.					
Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Feet and inches.		Dolls.		
550015	207799	758714	581089	19369	r. p. o., 50 by 9.9, f. f. c., a. l.	7	310 00		18
183252	150496	333748	278130	9271	r. p. o., 42 by 8.7, 40 by 8.7, f. f. c., d. l.; r. a. apt., 29 by 8.7, f. f., d. l.	24	295 00	.78 mile increase	19
110072	135614	251686	238520	7950	r. p. o., 42 by 8.7, 40 by 8.7, f. f. c., d. l.; r. a. apt., 29 by 8.7, f. f., a. l.	19½	283 00	.56 mile increase	20
268287	419542	687829	450528	15017	r. p. o., 55.1½ by 9.5½, f. f. c., a. l.; 23.6 by 8.10½, 31.6½ by 8.10½, f. f., between San Francisco and Lathrop, 83 m.; 23.6 by 8.10½, f. f., between Sacramento and Roseville, 18.2 miles.	8½	260 50		21
			682093	11368	r. p. o., 60 by 9, ½ l.; 50 by 9, ½ l.; 49 by 9, ½ l.; 41.8 by 9, ½ l.; 36 by 9, 1 l., f. f. c.	36½	251 80	60 days in March and April, 1878. Part: residue, \$719.75 (4), \$708.50 (5), \$655.30 (6), \$649.12 (7).	22
880125	436996	1317123	775734	12928	r. p. o., 50 by —, f. f. c., a. l.; r. a. apt., f. f., 24.3 by 8.11; a. l. to Homewood, 34 m., and Crestline to Chicago, 149 miles.	19½	246 40	60 days in March and April, 1868.	23
107370	63135	170505	113233	3774	46 by —, f. f. c., a. l. to Cameron, 171 m.; 16 by 6, f. f., a. l. Cameron to Saint Joseph, 32.5 miles.	13	240 00	32.5 m. at \$215 per m. In Oct., 1877. Main route; branch, \$50 (171).	24
34348	48229	82577	77175	2572	r. p. o., 46 by —, f. f. c., a. l.	13	239 00	In October, 1877.....	25
101917	63228	165145	142053	4735	r. p. o., 42.5 by 8.9, f. f. c., d. l.; r. a. apt., 23.5 by 6.8 (average), a. l.	27½	230 00	2.13 miles decrease	26
123891	144356	268247	190692	3328	14.8½ by 9.9½, 13.1 by 10.8½, 11.9½ by 10.9½, f. f., d. l. to Attica, 31 m., a. l. res., 60 miles.	26½	225 00	60 days in March and April, 1878.	27
			231781	7726	24 by 9, 13.10 by 9.2½, f. f., d. l.	20	144 00	In Oct., 1877. Part...	28
122494	99250	221744	87161	2805	r. p. o., 42.4 by 8, f. f. c., d. l. White River Junction to Essex Junction, 97.20 m.; r. a. apt., 10 by 7, 14.13 miles.	18	200 20	26 m. at \$160.20 per m., .87 mile inc. Main route; branch, \$45 (233).	29
131346	84745	216091	158985	5299	r. p. o., 30 by 8.9, f. f. c., a. l.; r. a. apt., 16 by 8.7 (av.), f. f., t. l. to Ayer Junction, 36.07 m., d. l. res., 15.93 m.	27½	199 00	.27 mile decrease	30
126994	88997	215991	118770	3959	24.8 by 8, f. f., d. l.	12	193.25	.34 m. inc. Main route; branch, \$50 (178).	31
83444	72459	155903	50601	1886	r. p. o., 42.4 by 8.5, f. f. c., d. l. Essex Junction to Saint Albans, 24½ m.; r. a. apt., — by —, a. l. res., 32.65 m.	19*	193 00	Pay on 31 m., \$153, 1.65 m. increase.	32
53807	42268	98075	89166	2972	24 by 6.10, f. f., d. l.	18	184 50	1.34 m. increase	33
9855	67513	166468	65407	2180	29.6 by 9.3, f. f., 639 m.; 12 by 7, f. f., 106 m., a. l.	7	171 00	In Oct., 1877. Main route; branch not weighed.	34
84102	30313	114415	86251	2875	30 by 8.4, f. f., a. l.	32½	165 60		35
65086	52491	117577	62938	2097	r. p. o., 24.10 by 6.9, f. f., a. l.	18	103 80	52 miles at \$141.30. m. increase.	36
94275	52035	147210	89301	2976	22 by 8.6, f. f., t. l.	48½	162 00		37
30046	91744	121790	120112	4003	r. p. o., 39.2 by 9.2, f. f. c., a. l.	12	160 00	In June, 1877.....	38
48896	40522	89418	58216	1940	r. p. o., 40 by 9, f. f. c., a. l.	12	156 80	In Oct., 1877.....	39
197771	68771	266542	192447	6414	24 by 9, f. f., a. l.	7	135 00	In Oct., 1877. 324.01 m. at \$111.60.	40
127398	48904	176302	102935	3431	r. p. o., 40 by 9, f. f. c., a. l.	9½	155 00	In Oct., 1877. 158.5 m. at \$166.70; 23.5 m. at \$128.	41
97158	63788	160946	123014	4100	r. p. o., 30 by 8.9, f. f. c., a. l.; r. a. apt., 16 by 8.7, f. f., t. l. to Ashburnham, 11 m., d. l. res., 82.10 m.	18½	153 00	18 m. at \$144. Main route; br'ch, 45 (243).	42

REPORT OF THE POSTMASTER-GENERAL.

E.—Table showing the weight of the mails, the speed with which they

Order.	State.	Number of route.	New number of route.	Terminal.	Corporate title of company carrying the mail.	Length of route. Miles.	Miles per hour.
43	Tex...	31010	31010	Marshall, Texarkana	Texas Pacific	74.66	26
44	Mass	3041	.....	Middleborough, Hyannis	Old Colony	45.29	25
45	Conn	913	5014	New Haven, Willimantic	Boston and New York Air Line.	54.14	27
46	Pa....	8010	.....	East Penn Junction, Waverly	Lehigh Valley	189.57	25
47	Tex...	31001	31001	Houston, Galveston	Galveston, Houston and Henderson.	51.5	18
48	Mo...	28002	.....	Saint Louis, Columbus	Saint Louis, Iron Mountain and Southern.	197	23
49	N. Y.	1250	6059	Fredonia, Dunkirk	Fredonia and Dunkirk	3.5	6
50	Del...	9501	.....	Wilmington, Delmar	Philadelphia, Wilmington and Baltimore.	97.02	25
51	Kans.	33001	33001	Kansas City, Denver	Kansas Pacific	639	25
52	Tex...	31006	31006	Longview, Houston	International and Great Northern.	237.50	23
53	N. Y.	1213	6013	Syracuse, Rochester	New York Central and Hudson River.	104	23
54	Me...	12	10	Portland, Lunenburg	Portland and Ogdensburg	114.05	22
55	Mo...	28006	.....	Kansas City, U. P. Transfer	Kansas City, Saint Joseph and Council Bluffs.	203.50	22½
56	Vt....	402	2010	White River Junction, Derby Line.	Connecticut, Passumpsic Rivers and Massawippi Valley.	114.3	24
57	Me...	221	11	Salmon Falls, Portland	Boston and Maine	45	30
58	Kans.	33013	33016	Topeka, Kansas City	Atchison, Topeka and Santa Fé.	66.20	22
59	Tex...	31003	31003	Houston, Denison City	Houston and Texas Central	337.45	20
60	N. H.	252	1005	Concord, Wells River	Boston, Concord and Montreal.	94.01	25
61	Vt....	410	2011	Lunenburg Junction, Johnson	Portland and Ogdensburg	78.19	22
62	Cal...	46033	46003	Roseville, Redding	Central Pacific	151.45	22
63	Vt....	2015	.....	North Bennington, State Line	Bennington and Rutland	1.85	20
64	N. Y.	1259	6067	Troy, North Adams	Troy and Boston	50	25
65	N. Y.	1279	6054	Chatham Village, Rutland	Central Vermont	111.30	20
66	N. Y.	1242	6053	Rouse's Point, Ogdensburg	Ogdensburg and Lake Champlain.	119	26
67	N. Y.	1259	6067	North Hoosac Junction, State Line.	Troy and Boston	5.5	25
68	Kans.	33017	33010	Atchison, Pueblo	Atchison, Topeka and Santa Fé.	618.85	24
69	Vt....	2015	.....	Rutland, Bennington	Bennington and Rutland	57.16	20
70	Mass	3039	.....	South Braintree Junction, Newport.	Old Colony	61.16	25
71	N. Y.	1219	6022	New York, Chatham	New York and Harlem	130.5	26
72	Colo.	38001	38001	Denver, El Moro	Denver and Rio Grande	209.2	20
73	Vt....	522	2009	Richford, Newport	Missisquoi and Clyde Rivers	31.95	30
74	Pa....	8004	.....	Philadelphia, Bethlehem	North Pennsylvania	54.46	27

are conveyed, the accommodations for mails and agents, &c.—Continued.

Whole weight carried any distance for thirty days.			Average weight carried whole distance.		Size, &c., of mail-car or apartment.	Trips per week.	Pay per mile per hour.	Remarks.	Order.
Outward.	Inward.	Total.	30 days, total.	Per day, total.					
Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Feet and inches.	Dolls.			
32636	122132	154768	41105	1370	16 by 7.8, f. f., a. l.	7	150 00	.66 m. increase.	43
47015	36317	83332	55133	1838	14 by 8.4, 14 by 8.4, 10.2 by 6.6, f. f., d. l.	12	146 80	In Dec., 1877.	44
54469	56191	110660	95024	3167	9.10 by 6.12, f. f., a. l.	16½	146 70	1.86 m. decrease.	45
96804	59781	156585	69583	2319	22 by 8.6, f. f., t. l. to Mauch Chunk, 29.3 m., d. l. thence to Penn Haven, 7.5 m., a. l. res. 152.57 m.	15½	146 70	.....	46
38618	42006	80624	78835	2627	16 by 7, 16 by 7, 16 by 6.9, f. f., d. l.	14	145 00	.....	47
189499	62241	251740	102936	3431	13.10 by 9.2½, f. f.	15½	144 00	In Oct., 1877. Main route; branch, \$50. Route restated (183). See parts.	48
3742	4769	8511	8511	283	3.6 by 2; in charge of conductor.	27½	142 85	.....	49
54974	29253	84227	46043	1535	20 by 9, 24 by 9, f. f., d. l. to Wyoming, 51 m., a. l. res., 46.02 m.	12	141 30	13.02 m. at \$112.50	50
94722	58651	153373	70271	2342	24.1½ by 9.4, 30.11 by 9.5, f. f., a. l.	7	137 70	.....	51
91332	34465	125797	88717	2957	13.10 by 7.9, f. f., a. l.	7	135 00	Main route; branches, \$50 (174, 182), 1.50 m. increase.	52
90560	57041	147601	65012	2167	18 by 8.9, f. f., a. l.	27½	135 00	.....	53
26644	19610	46254	27624	920	12.4 by 6.8, f. f., d. l. to Upper Bartlett, 72 m., a. l. res.	9½	135 00	2.5 m. decrease.	54
112658	59889	172547	88613	2953	40 by —, f. f., a. l.	13	134 10	In April, 1878.	55
104849	84572	189421	110605	1843	r. p. o., 23 by 6.10, f. f., a. l.	12	133 17	Combined weights of Apr. and Aug., 1878. .57 m. decrease.	56
49783	34147	83930	74735	2491	r. p. o., 24.8 by 8, f. f., d. l.	12	131 25	.82 m. increase.	57
28235	57708	85943	74897	2496	23.2 by 9.3½, f. f., a. l.	10½	129 00	2.64 m. decrease.	58
56337	76545	136122	54726	1824	14 by 7.3, f. f., a. l.	7	125 10	.10 m. decrease.	59
42457	27564	70021	48927	1630	17 by 6.8, f. f., d. l. to Plymouth, 51 m., a. l. res.	13½	125 00	\$1,410 per annum m. m. service. .01 m. increase.	60
17151	13318	30469	18825	627	14.9 by 6.8, f. f., a. l.	6	125 00	.62 m. decrease.	61
56167	20893	77060	51187	1706	23.6 by 8.10½, f. f., a. l.	6	121 50	.....	62
22111	26843	48954	48954	1631	18 by 7, f. f., a. l.	15*	117 90	Branch; main route, \$107.10 (69). In Apr., 1877.	63
99892	117934	217826	161463	5382	r. p. o., 30 by 8.5, f. f., a. l.; r. a. apt., 15.6 by 6.10, 15.6 by 7, f. f., d. l.	30	112 50	Main route; branch, \$112.50 (67). In Apr., 1877.	64
40984	44778	85762	32025	1067	15.4 by 6.4 (average), f. f., a. l.	12	112 50	Main route; branch, \$54 (144). In Apr., 77.	65
18790	24009	42799	22318	743	13.2 by 7.2, f. f., a. l.	9*	112 50	In Apr., 1877.	66
34447	28564	63011	6221	207	18.6 by 10.6 (average) a. l.	18	112 50	Branch; main route, \$112.50 (64). In Apr., 1877.	67
111306	48748	160054	71082	2369	23.2 by 9.3½, f. f., a. l.	8½	108 00	148.15 m. at \$135. Main route; branch, \$80.10 (91). .29 m. increase.	68
28092	28481	56573	41870	1395	18 by 7, f. f., a. l.	15*	107 10	Main route; branch, \$117.90 (63).	69
65207	48949	114156	39723	1324	14 by 8.4, 14 by 8.4, 10.2 by 6.6, 10.2 by 6.6, f. f., d. l. to Middleboro', 22.82 m.; in b. c. res.	18½	107 10	In Dec., 1877.	70
57157	37137	90294	33772	1125	20.1 by 8.6, 20.6 by 8, f. f., a. l.	11½	102 70	64.5 m. at \$92.70, \$500 m. m. In Apr., 1877.	71
42466	26328	68794	31758	1058	17.9 by 7.4, f. f., a. l.; r. a. to Cuchara, 169.5 m., res. in charge of conductor, 39.7 m.	7	100 80	Main route; branch, \$45 (200).	72
7821	9760	17581	15161	505	13 by 7, f. f. c., a. l.	15*	100 00	.57 m. increase. In Apr., 1877.	73
70836	37109	107945	80993	2899	12 by 8, f. f., a. l.	62	99 00	Main route; branch \$45 (212). .14 m. decrease. In Apr., 77.	74

E.—Table showing the weight of the mails, the speed with which they

Order.	State.	Number of route.	New number of route.	Termini.	Corporate title of company carrying the mail.	Length of route. Miles.	Miles per hour.
75	Conn.	910	5013	South Norwalk, Danbury...	Danbury and Norwalk	23.65	30
76	Tex.	31004	31004	Hempstead, Austin	Houston and Texas Central	115.20	18
77	Ark.	29001	29001	Memphis, Little Rock	Memphis and Little Rock	134.21	17
78	Tex.	31009	31009	Shreveport, Fort Worth	Texas and Pacific	220.04	17
79	Oreg.	44001	44001	Portland, Roseburg	Oregon and California	199.10	18
80	N. H.	261	1006	Groveton, Wells River	Boston, Concord and Montreal	54.12	25
81	Kans.	33002	33003	Atchison, Waterville	Union Pacific (Central Branch)	100.50	21
82	Vt.	525	2008	Leicester Junction, Ticonderoga Station	Central Vermont	15.60	15
83	Pa.	8006		Philadelphia, Darby	Philadelphia and Darby	7.56	5
84	Tex.	31007	31007	Palestine, Austin	International and Great Northern	183.93	18
85	Colo.	38006	38004	Cucharas, La Veta	Denver and Rio Grande	22.55	21
86	Va.	11005		Richmond, Huntington	Chesapeake and Ohio	421.14	20
87	N. Y.	6103		Corning, Geneva	Fall Brook Coal Co. (operating Syracuse, Geneva and Corning)	62.41	22
88	Cal.	46006	46006	Sacramento, San Francisco	California Pacific	86.72	20
89	Utah	41001	41001	Ogden City, Salt Lake City	Utah Central	36.50	18
90	Kans.	33001	33002	Lawrence, Leavenworth	Kansas Pacific	35.05	25
91	Kans.	33007	33011	Newton, Wichita	Atchison, Topeka and Santa Fe	27.69	22
92	Cal.	46014	46014	Huron, Yuma	Southern Pacific	530.29	av. 16
93	La.	30003	30003	New Orleans, Morgan City	Morgan's Louisiana and Texas	80.07	25
94	Mo.	28034		Bismarck, Columbus	Saint Louis, Iron Mountain and Southern	119.27	23
95	Mass.	660	3057	Worcester, Winchendon	Boston, Barre and Gardner	38.04	22
96	N. Y.	6053		Rouse's Point, Ogdensburg	Ogdensburg and Lake Champlain	119	26
97	Pa.	8063		Pittsburg, Cumberland	Pittsburg and Connellsville	150.1	27
98	Conn.	901	5001	Norwich, Worcester	New York and New England (leases Norwich and Worcester)	59.65	21
99	Vt.	408	2008	Saint Albans, Canada Line	Central Vermont	17.10	25
100	Ark.	29001		Memphis, Little Rock	Memphis and Little Rock	135	16
101	Tex.	31002	31002	Harrisburg, San Antonio	Galveston, Harrisburg and San Antonio	215	25
102	Kans.	33009	33012	Atchison, Lincoln	Atchison and Nebraska	151.33	20
103	N. Y.	1212	6012	Troy, Schenectady	New York Central and Hudson River	22	24
104	Vt.	2011		Lunenburg Junction, Swanton	Portland and Ogdensburg	118.14	22
105	Tex.	31005	31005	Bremond, Waco	Houston and Texas Central	44.09	14
106	Cal.	46010	46010	Lathrop, Goshen	Central Pacific	148.30	24
107	Nev.	45001	45001	Virginia City, Reno	Virginia and Truckee	51.75	20
108	Pa.	8016		Penn Haven Junction, Tomhicken	Lehigh Valley	24.10	25

are conveyed, the accommodations for mails and agents, &c.—Continued.

Whole weight carried any distance for thirty days.			Average weight carried whole distance.		Size, &c., of mail-car or apartment.	Trips per week.	Pay per mile per annum.	Remarks.	Order.
Outward.	Inward.	Total.	30 days total.	Per day, total.					
Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Feet and inches.		Dolla.		
20792	14706	35498	26371	879	11.2 by 6, f. f., s. l.	17*	99 00	Main route; branches \$45 (235, 276). 15 m. increase. In Apr., '77.	75
16514	11802	28316	17748	591	14 by 7½, f. f., s. l.	7	93 60	3.50 m. decrease.	76
40658	22749	63407	52737	1757	22.8 by 8.9, f. f., s. l.	7	90 00		77
125171	50654	175825	43221	1440	9.4 by 6.8, 16 by 7.8, f. f., s. l.	12½*	90 00	.96 m. increase.	78
34838	29924	64762	36723	1224	20 by 9, f. f., s. l.	6	90 00		79
17485	21520	39005	24356	811	17 by 6.8, f. f., s. l.	12	90 00	6 addl. trips in summer bet. Groveton and Lancaster. In Apr., 1877.	80
18410	9082	27492	17743	591	14.6 by —, f. f., s. l.	6	90 00	.50 m. increase.	81
2436	1083	4129	2305	76	14 by 7, f. f.; no r. a.	6	90 00	1.10 m. increase. In Apr., 1877.	82
536	201	737	737	24	in passenger car; no r. a.	9*	90 00	2.56 m. increase. In Apr., 1877.	83
32637	14614	47251	28701	956	19.6 by 8.10, 12.5 by 7.1, 13 by 7.3, f. f., s. l.	7	87 30	.09 m. increase.	84
15226	8180	23406	27481	915	17.9 by 7.4, f. f., s. l.; thro' mail room, 9 by 7.4.	7	85 50		85
150611	100226	250837	51985	866	18.6 by 8.5, f. f., s. l.	12	83 70	60 days in Apr. and July, 1877. \$90 per m. betw. Richmond and Hinton; \$65 per m. residue.	86
17453	16684	34137	25620	854	10.11 by 6.10, f. f., s. l.	6	82. 80	In August, 1878.	87
26204	26144	52348	25052	835	10 by 8.10, f. f., s. l., 8.9½ by 7.3½, f. f.; Davisville to Sacramento, 13.26 m.	13½*	81 90		88
12467	20849	33316	20298	676	14.3 by 8.8½, f. f., d. l.	14	81 00		89
8715	10426	19141	15052	501	11 by 8.9, f. f., s. l.	7	81 00	2.05 m. increase. Late branch 33001.	90
17904	9541	27445	26370	879	13.6½ by 9.3½, f. f., s. l.	7	80 10	Branch; main route \$108, \$135 (68), .60 m. increase.	91
59735	30950	90685	36515	1217	in b. c. to Goshen, 40 m.; 23.6 by 8.10½, 31.6½ by 8.10½, f. f., s. l., Goshen to Los Angeles, 11.9 by 8.5, f. f., s. l., Los Angeles to Yuma.	7	79 20	5¼ m. from Nov. 1, 1875.	92
25196	14396	39592	34584	1152	11.11 by 6.5 (average), f. f., s. l.	7	79 20	2.93 m. decrease.	93
			23073	769	13.10 by 9.2½, f. f., s. l.	13	79 20	In Oct., 1877. Formerly part of route 28002.	94
14923	11499	26422	17326	577	10 by 6.6, f. f., d. l.; extra car 8 by 3.4.	12	78 75	1.04 m. increase.	95
28675	22149	50824	26648	888	13 by 7, f. f., s. l.	9*	78 30	In Mar., 1878.	96
34697	25287	59984	28735	957	14.6 by 8.6, f. f., s. l.	14½*	76 50	In Feb. and Mar., 1878. Main route; branches \$45, \$54; branches not weighed.	97
37057	22372	59429	28093	936	12 by 7, f. f., s. l.	18	76 50	.35 m. decrease.	98
5765	8578	14343	14343	478	12.6 by 7, f. f., s. l.	18	76 50	.10 m. increase.	99
35057	21781	56838	45312	1510	23 by 8, f. f., s. l.	7	75 80	In Feb., 1877.	100
38484	16334	54818	36746	1224	11.3 by 7.2, 12.4 by 9.2, f. f., s. l.	6	75 00	13.4 m. ext. from Sept. 1, 1875; 46.1 m. ext. from Apr. 10, 1877; .30 m. increase.	101
26605	16206	42811	21078	702	20 by 9, f. f., s. l.	6	75 00	.95 m. decrease.	102
16532	26268	42800	41869	1396	in b. c.; no r. a.	23*	73 80	In Apr., 1877.	103
20826	16867	37693	20375	679	13.7 by 6.6, 15.6 by 6.6, f. f., s. l.	9½*	72 90	39.95 m. from Aug. 1, 1877. In Apr., 1878.	104
13834	7869	21703	19763	658	14 by 7.3, f. f., s. l.	13	72 90	.47 m. decrease.	105
62165	26841	89006	74950	2498	23.6 by 8.10, 31.6½ by 8.10½, f. f., s. l.	7	72 00	1.39 m. increase.	106
21929	13694	35623	28398	946	12 by 8, f. f., s. l.	7	72 00		107
17129	14899	32028	19489	649	no r. a. to Hazel Creek Bridge, 9 m., apt. 10 by 7, f. f., d. l., thence to Hazelton, 7 m., 1½ l. res., 8.1 m.	1½*	72 00	Main route; branches \$45 (259, 285).	108

E.—Table showing the weight of the mails, the speed with which they

Order.	State.	Number of route.	New number of route.	Termini.	Corporate title of company carrying the mail.	Length of route.	Miles per hour.
						<i>Miles.</i>	
109	Dak...	35001	35001	Sioux City, Yankton.....	Dakota Southern.....	61.71	15
110	N. Y...	1804	6095	Saratoga Springs, North Creek.	Adirondack.....	57.96	12
111	Pa.....	8030	.....	Harrisburg, Martinsburg..	Cumberland Valley.....	94	24
112	Kans.	33013	.....	Topeka, Kansas City.....	Atchison, Topeka and Santa Fé	68.84	12
113	Nebr	34004	34004	Omaha, Orecapolis.....	Burlington and Missouri River in Nebraska.	17.76	16
114	N. Y...	1216	6016	Buffalo, Lewiston.....	New York Central and Hudson River.	29	21
115	Cal...	46011	46011	San Francisco, Cloverdale..	San Francisco and North Pacific	80	30
116	N. J...	7006	.....	Camden, Hightstown.....	Pennsylvania.....	31.75	35
117	Vt.....	409	2007	Saint Albans, Richford....	Central Vermont.....	28.47	18
118	N. Y...	1215	6015	Buffalo, Lockport.....	New York Central and Hudson River.	22	21
119	N. Y...	1214	6014	Canandaigua, Tonawanda..	.....do.....	86	17
120	Colo...	38003	38002	Hughes' Station, Boulder...	Denver and Boulder Valley....	27.75	23
121	Mass	{ 618 } { 651 }	3003	Salem, Rockport.....	Eastern.....	20.69	21
122	N. H...	257	1011	Nashua, Greenfield.....	Boston and Lowell, and Nashua and Lowell.	26.58	25
123	Mass	657	3058	Winchendon, Peterboro'...	Boston, Barre and Gardner....	16.37	22
124	N. Y...	6066	.....	Rouse's Point, Canada Line.	Champlain and Saint Lawrence	2.25	25
125	Kans	33003	33004	Lawrence, Coffeyville.....	Leavenworth, Lawrence and Galveston.	140.8	25
126	Utah	41003	41003	Ogden City, Franklin.....	Utah Northern.....	79.94	12
127	Nebr	34002	34002	Plattsmouth, Kearney Junction.	Burlington and Missouri River in Nebraska.	180.8	21
128	Kans	33007	.....	Newton, Wichita.....	Atchison, Topeka and Santa Fé	27.09	21
129	Ky....	20021	.....	Cincinnati, Somerset.....	Cincinnati Southern.....	160.26	24
130	Ark...	29005	29003	Argenta, Fort Smith.....	Little Rock and Fort Smith....	169.29	16
131	Ark...	29005	.....	.....do.....	.....do.....	169.29	13
132	Nev...	45002	45002	Palisades, Eureka.....	Eureka and Palisades.....	91.27	22
133	Cal...	46005	46005	Sacramento, Folsom.....	Sacramento Valley.....	23.2	20
134	Ark...	29006	29005	Malvern, Hot Springs.....	Hot Springs.....	25.11	16
135	N. Y...	1203	6003	Buffalo, Suspension Bridge..	Erie.....	25.94	25
136	Cal...	46002	46002	San Francisco, Soledad.....	Southern Pacific.....	143.8	21
137	N. Y...	1293	6077	Ithaca, Geneva.....	Geneva, Ithaca and Sayre (late Geneva, Ithaca and Athens).	40.25	23
138	Utah	41002	41002	Salt Lake City, York.....	Utah Southern.....	75	15
139	Kans	33018	33021	Waterville, Washington....	Waterville and Washington....	20.50	21
140	Mass	628	3024	Ayer, Greenville.....	Fitchburg.....	23.50	18
141	Cal...	46024	46023	Galt, Ione.....	Amador Branch.....	27.84	14
142	Kans	33019	33022	Greendale, Concordia.....	Republican Valley.....	41.97	21
143	Mass	3044	.....	South Braintree Junction, Fall River.	Old Colony.....	34.36	25
144	N. Y...	1279	6054	North Bennington, State Line	Central Vermont.....	2	.....
145	Kans	33007	.....	Atchison, Pueblo.....	Atchison, Topeka and Santa Fé	618.56	26
146	N. H...	260	1014	Brock's Crossing, North Conway.	Portsmouth, Great Falls and Conway.	71.11	23

are conveyed, the accommodations for mails and agents, &c.—Continued.

Whole weight carried any distance for thirty days.			Average weight carried whole distance.		Size, &c., of mail-car or apartment.	Trips per week.	Pay per mile per annum.	Remarks.	Order.
Outward.	Inward.	Total.	30 days total.	Per day total.					
Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Feet and inches.		Dolla.		
15571	7681	23252	18461	615	16 by 9.6, f. f., s. 1	6	72 00	23 m. increase	109
13609	9334	22943	17230	574	13.6 by 5.10, f. f., s. 1	6	72 00	In Apr., 1877	110
37655	39214	76869	23848	797	13.8 by 8.4, f. f., s. 1	18	69 30	In Apr., 1877	111
18457	47696	66153	56890	1890	23.2 by 9.3½, f. f. c., s. 1	7	67 50	In Oct., 1877	112
21527	13518	35045	34100	1136	18.5 by 8.8, f. f., s. 1	6	67 50	.02 m. increase	113
24054	13679	37733	28698	956	in b. c.; no r. a.	24	67 50		114
20527	8350	28886	21935	731	12.9 by 8.10, f. f., s. 1	7	67 50		115
16797	13367	30164	13648	454	8 by 6.6, f. f., r. a. 1½ l. to Pemberton Junction. 30 m., 1 l. res.	15½*	67 50	27.50 m., at \$36, main route; branch \$45. Branch included on route 7007; .75 m. decrease.	116
5836	5776	11612	8038	267	10.6 by 6, f. f., s. 1	6	67 50	.19 m. decrease. In Apr., 1877.	117
2931	3476	6407	5968	198	in b. c.; no r. a.	12	67 50	In Apr., 1877.	118
9606	9736	19342	4187	139	9.2 by 6.1, 10 by 8.6, f. f., s. 1	6	67 50	In Apr., 1877.	119
2344	1795	4139	3195	106	12 by 7, f. f.; no r. a.	7	67 50		120
9186	6833	16019	7974	265	in b. c.	16½	67 00	[0.50 m., at \$50; res. 16 m., at \$67; \$125 m. m.; 1.81 m. decrease. In Apr., 1877.]	121
14600	8351	22951	14708	490	no apt.; no r. a.	18	65 00	.42 m. decrease. In Apr., 1877.	122
5390	4013	9403	7858	261	10 by 6.6, f. f., d. l.; extra car, 8 by 3.4.	12	64 80	In Apr., 1877.	123
17266	7190	24455	24465	815	in b. c.; no r. a.	12	63 90	In May and June, 1878	124
43546	20815	64361	22402	748	18 by 8.9, f. f., s. 1	6	63 36	2.1 m. decrease	125
31464	12601	44065	41126	1370	15 by 6.6, f. f., s. 1	7	63 00		126
44534	24459	68993	33778	1125	18.5 by 8.9, f. f., s. 1	6	63 00	.20 m. decrease	127
16108	8909	25017	23979	799	23.2 by 9.3½, f. f. c., s. 1	7	63 00	Branch; main route \$54, &c. (145). In Oct., 1877.	128
21986	14569	36555	13445	448	17 by 7.6, f. f., s. 1	12	63 00	1.40 m. from Jan. 1, 1878. In May, 1878.	129
24370	12377	36747	21975	732	12 by 7.6, f. f., s. 1	6	61 20	43.65 m., at \$54.72 perm.	130
19821	9711	29532	16002	533	12.4 by 7.5, f. f., s. 1	6	61 20	In Oct., 1877, 34.11 m.; Ozark to Van Buren, Jan. 1, 1877, 9.54 m.; Van Buren to Fort Smith, Mar. 21, 1877.	131
9450	3842	13292	12763	425	no apt.; no r. a.	7	61 20		132
7191	4758	11949	11208	373	no apt.; no r. a.	12	61 20		133
7801	2978	10779	10779	359	6.10 by 2.1, no r. a.	13	61 00		134
10681	3180	13861	5616	187	no apt.; no r. a.	9*	58 50	In Sept., 1877	135
40524	23319	63843	34283	1142	17 by 9, f. f., s. 1	12½*	57 60	Main route; branch \$45 (238).	136
10960	11236	22196	13491	449	10.5 by 6.5, f. f., s. 1	6	57 50	In Apr., 1877.	137
22555	10835	33390	23215	840	15 by 8, f. f., s. 1	7	56 70	\$46.80 on 27 miles	138
10291	5917	16208	10652	355	14.6 by —, f. f., s. 1, 7.2 m.; no r. a. res.	6	56 70	.10 m. increase	139
9160	7027	16186	12181	406	6.0 by 6, f. f., s. 1	12	56 25	.50 m. increase	140
6904	4497	10501	10501	350	in b. c.; no r. a.	7	55 80		141
8502	5163	13665	10451	348	14.6 by —, f. f., s. 1	6	55 80		142
9581	7782	17363	9225	307	in b. c.; no r. a.	18	54 90	In Dec., 1877.	143
79755	33680	61655	61655	2055			54 00	Branch; main route \$112.50 (65). In Apr., 1877.	144
96148	39775	135923	60074	2002	23.2 by 9.3½, f. f. c., s. 1	7	54 00	Main route; branch \$63 (128); 470.41 m. at \$54, 10.83 m. at \$67.50. In Oct., 1877.	145
20178	18855	34033	22148	738	20 by 8.7½, f. f., s. 1	6	54 00	\$50 m. m. Additional trips from July 29 to Oct. 8, 1877. 1 m. increase.	146

E.—Table showing the weight of the mails, the speed with which they

Order.	State.	Number of route.	New number of route.	Termini.	Corporate title of company carrying the mail.	Length of route.	Miles per hour.
						<i>Miles.</i>	
147	Wash	43001	43001	Kalama, Wilkeson	Northern Pacific	136.33	19
148	N. J.	7015	.....	Camden, Atlantic City	Camden and Atlantic	60	25
149	Cal	46017	46017	Los Angeles, Santa Ana	Southern Pacific	28.6	17
150	Colo	38004	38003	Denver, Colorado Junction	Colorado Central	129.62	30
151	Pa	8088	8086	Pollock, Butler	Parker and Karns City	27	12
152	Kans	33012	33015	Junction City, Clifton	Junction City and Fort Kearney	50.6	15
153	Pa	8068	8067	Lewisburg, Laurenton	Pennsylvania (leases Lewisburg, Centre and Spruce Creek)	42.38	11½
154	Pa	8020	.....	Elmira, Blossburg	Tioga	45.5	20
155	Nebr	34005	34005	Brownville, York	Nebraska	132.64	12
156	N. Y.	6054	.....	Chatham Village, Bennington	Harlem Extension Railroad, South Coal Transportation Company	57.80	20
157	Tex	31011	31011	Sherman, Texarkana	Texas and Pacific	155.22	20
158	Kans	33003	33005	Cherryvale, Independence	Leavenworth, Lawrence and Galveston	10.87	25
159	Nebr	34008	34008	Valley, David City	Omaha and Republican Valley	61.29	12
160	Tex	31007	.....	Palestine, Austin	International and Great Northern	183.84	20
161	Minn	26006	.....	White Bear Lake, Albert Lea	Minneapolis and Saint Louis	123.35	20
162	N. Y.	1266	6072	Ithaca, Sayre	Geneva, Ithaca and Sayre (late Geneva, Ithaca and Athens)	34.60	23
163	Mass	627	3020	Ayer, Lowell	Boston and Lowell and Nashua and Lowell	16.39	25
164	Nebr	34003	34003	Omaha, Tekamah	Omaha and Northwestern	48.35	15½
165	Mass	619	3004	Salem, Marblehead	Eastern	4.49	16
166	N. H.	259	1013	Dover, Alton Bay	Boston and Maine	28.42	30
167	N. Y.	1270	6078	Port Jervis, Monticello	Monticello and Port Jervis	24	20
168	Mass	623	3017	Lowell, Lawrence	Boston and Lowell and Nashua and Lowell	13.08	25
169	Mass	654	3007	East Salisbury, Amesbury	Eastern	3.90	20
170	Mass	616	3036	Boston, Dedham	Boston and Providence	9.61	28
171	Mo	28005	.....	Palmyra, Hannibal	Hannibal and Saint Joseph	15	20
172	Mass	652	3014	Wakefield, Newburyport	Boston and Maine	31.36	30
173	Kans	33010	33013	Leavenworth, Onaga	Kansas Central	84.23	15½
174	Tex	31006	31006	Mineola, Troupe	International and Great Northern	44.70	9½
175	Ill	23057	.....	Rochelle, Rockford	Chicago and Iowa (late Chicago, Rockford and Northern)	27.64	22
176	Mass	624	3018	Winchester, Woburn	Boston and Lowell and Nashua and Lowell	2.18	25
177	Mass	610	3012	Boston, Medford	Boston and Maine	5.31	30
178	Mass	602	3011	Rollingsford, Great Falls .....	.....do	2.50	30
179	Mass	615	3002	Boston, West Lynn Depot	Eastern	11.60	17
180	N. Y.	1285	6090	Sodus Point, Gorham Station	Ontario Southern (late Sodus Point and Southern)	34	17
181	Mass	625	3019	Somerville Station, Concord	Boston and Lowell and Nashua and Lowell	16.61	25

are conveyed, the accommodations for mails and agents, &c.—Continued.

Whole weight carried any distance for thirty days.			Average weight carried whole distance.		Size, &c., of mail-car or apartment.	Trips per week.	Pay per mile per annum.	Remarks.	Order.
Outward.	Inward.	Total.	30 days, total.	Per day, total.					
Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Feet and inches.		Dolla.		
16624	8241	24865	14876	495	13.6 by 6.7, f. f., s. l.	7	54 00	Payon extension, 30.73 m., from Dec. 16, 1877.	147
31606	20697	52303	28781	479	8.6 by 6, f. f., s. l.	12	54 00	60 days; 30 from Apr. 16 and 30 from July 16, 1877. 19 trips in summer.	148
11177	6451	17628	14114	470	in b. c.; no r. a.	7	54 00		149
23812	13574	37386	13784	459	11 by 7.6, f. f., s. l.	8½	54 00	Main route; branches \$45 (202, 211).	150
15200	8775	23975	9026	300	8.6 by 5.6, f. f., d. l. to Barnhart's Mills, 13 m., s. l. res., 14 m.	8½	54 00	In Nov., 1877.	151
6667	4234	10901	7429	247	13½ by 6½, f. f., s. l.	6	54 00	17.23 m. at \$48.60.	152
4905	2235	7140	4970	165	8.6½ by 6.9½, f. f., s. l.	6	54 00	\$107 m. m.; 21.65 m. extension from Dec. 1, 1877. In Apr., 1877.	153
12239	10099	22338	12224	407	14.3 by 7, f. f., s. l.	12	53 10	Main route; branches \$45 (264, 275, 279, 288). In Dec., 1877.	154
12165	11274	23439	8769	292	12 by 6.7, 8.9 by 6.7, f. f., s. l.	6	51 30	.52 m. increase.	155
7808	9683	17671	8708	290	12.4 by 6.1, f. f., s. l.	6½	51 30	In July, 1878.	156
12601	18953	31554	20648	688	14 by 7.10, 15 by 7.5½, f. f., s. l.	6	51 00	.25 m. increase.	157
14592	9044	23636	23636	787	18 by 8.9, f. f., s. l.	6	50 40	.87 m. increase.	158
9818	7424	17242	8380	279	8.6 by 5, f. f., s. l.	6	50 40		159
31751	13503	45254	28510	930	13 by 7.2, s. l.	7	50 00	In Dec., 1877.	160
19274	17616	36890	19027	634	22 by 9.3½, f. f., s. l.	12½	50 00	In July, 1878.	161
9060	8741	16801	13850	462	10.5 by 6.5, f. f., s. l.	6	50 00	In Apr., 1877.	162
5763	9329	15092	12855	428	8.7 by 6.9, f. f., d. l.	12	50 00	.61 m. decrease. In Apr., 1877.	163
8356	3165	11521	7784	259	9.6 by 7.6, f. f., s. l.	6	50 00	40.2 m. under contract; 7.6 m. at \$45; .55 m. increase.	164
1972	5769	7741	7741	258	in b. c.	13	50 00	.49 m. increase. In Apr., 1877.	165
7325	4188	11513	7093	236	9.3 by 6, f. f., d. l.	13*	50 00	.42 m. increase. In Apr., 1877.	166
5720	4515	10235	6612	219	12 by 8; mail and express combined.	6	50 00	In Apr., 1877.	167
3670	2560	6230	5184	172	no apt.; no r. a.	16½	50 00	\$350 m. m. .92 m. decrease. In Apr., 1877.	168
2868	2161	5029	5029	167	in b. c.	21*	50 00	\$50 m. m. .10 m. decrease. In Apr., 1877.	169
4659	2956	7615	4888	162	no apt.; no r. a.	18	50 00	1.39 m. decrease. In Apr., 1877.	170
2363	2293	4653	4853	161	in b. c.; no r. a.	13	50 00	Branch; main route \$240, \$215 (24). In Oct., 1877.	171
5702	4709	10411	4856	161	in b. c.; no r. a.	12	50 00	.86 m. increase. In Apr., 1877.	172
6239	3509	9748	4720	157	7.6 by 5, f. f., s. l.	6	50 00	.03 m. decrease.	173
3106	3720	6826	4457	148	8.6 by 7, f. f., s. l.	6	50 00	Branch; main route \$135 (52); .68 m. increase.	174
2639	3238	5877	4296	143	in b. c.; no r. a.	6	50 00	In Nov., 1877.	175
2334	1525	3859	3859	128	no apt.; no r. a.	18	50 00	.82 m. decrease. In Apr., 1877.	176
1988	2026	4014	3637	121	no r. a.	18	50 00	\$60 m. m.; .19 m. decrease. In Apr., 1877.	177
1894	1694	3588	3588	119	in b. c.; no r. a.	18	50 00	Branch; main route \$193.25 (31); .50 m. decrease. In Apr., 1877.	178
3599	2689	6288	3345	111	in b. c.	12	50 00	1.60 m. increase. In Apr., 1877.	179
3735	4896	8631	3118	103	7.5 by 7, f. f., s. l.	6	50 00	In Apr., 1877.	180
3987	2519	6506	3040	101	no apt.; no r. a.	12	50 00	.65 m. increase. In Apr., 1877.	181

E.—Table showing the weight of the mails, the speed with which they

Order.	State.	Number of route.	New number of route.	Termini.	Corporate title of company carrying the mail.	Length of route.	Miles per hour.
						Miles.	
182	Tex...	31006	31006	Phelps, Huntsville.....	International and Great North- ern.	9	8
183	Mo ...	28002	.....	Mineral Point, Potosi.....	Saint Louis, Iron Mountain and Southern.	4	20
184	N. H. .	359	1007	Wing Road, Fabyan House .	Boston, Concord and Montreal	13.50	20
185	Mass .	621	3013	Georgetown, Haverhill	Boston and Maine	7.45	30
186	Cal ...	46020	46019	Colfax, Nevada City	Nevada County Narrow Gauge.	22.81	13
187	R. I. .	830	4007	Kingston Depot, Narragan- sett Pier.	Narragansett Pier.....	9.14	20
188	Wis ...	25027	.....	Stevens Point, Portage	Wisconsin Central	73.23	21
189	Ohio ..	21052	.....	Little Miami Junction, Scott ..	Cincinnati and Eastern	48.19	15
190	Cal ...	40023	40022	Woodland, Williams	California Northern	39.72	14
191	Mich ..	24041	.....	Marquette, L'Anse	Marquette, Houghton and On- taron.	63.46	20
192	Vt.	2014	.....	Burlington, Cambridge Junc- tion.	Burlington and Lamotte	34.97	22
193	Cal ...	46004	46004	Folsom, Shingle Springs	Placerville and Sacramento Valley.	26.5	12
194	N. Y. .	1811	6021	Rochester, Charlotte.....	New York Central and Hudson River.	9	24
195	Cal ...	46027	46026	San Francisco, Alameda	Central Pacific	13.54	16
196	Pa.	8105	.....	Emmerton, Clarion	Emmerton and Shippensburg....	30.12	12
197	Pa.	8108	8105	Emmerton, Knox	do	15.2	12
198	Cal ...	46022	46021	Santa Cruz, Watsonville	Santa Cruz	23.39	18
199	Cal ...	46012	46012	Stockton, Milton.....	Stockton and Copperopolis	30	17
200	Colo ...	38001	38001	Pueblo, Cañon City	Denver and Rio Grande	45	20
201	Mass ..	742	3009	Lynn, Marblehead	Eastern	6.16	16
202	Colo ...	38004	38003	Golden Junction, George- town.	Colorado Central	37.72	12
203	Cal ...	46016	46016	San Francisco, Duncan's Mills.	North Pacific Coast	80.47	16
204	Cal ...	46008	46008	Napa Junction, Calistoga ...	California Pacific.....	34.60	21
205	Wis ...	25018	.....	Manitowoc, New London ...	Milwaukee, Lake Shore and Western.	63.56	20
206	Ohio ..	21054	.....	Dayton, Musselmanns.....	Dayton and Southeastern.....	70.00	18
207	Cal ...	46009	46009	Marysville, Oroville	California Northern	30	22
208	Wis ...	25017	.....	Menasha, Ashland	Wisconsin Central	251.02	16
209	Neb ...	34006	34006	Crete, Beatrice	Burlington and Missouri River.	30.6	12
211	Colo ...	38004	38003	Forks Creek, Black Hawk ...	Colorado Central	7.90	12
212	Pa.	8004	.....	Landsdale, Doylestown	North Pennsylvania	10.65	27
213	Cal ...	46007	46007	Davisville, Grafton	California Pacific.....	18.34	20
214	Pa.	8037	8036	Altoona, Martinsburgh	Pennsylvania (lessees)	22.52	14
215	N. J. .	7025	.....	Waterloo, Franklin Furnace.	Sussex	24.76	22
216	Me ...	14	16	Houlton, New Brunswick Line.	New Brunswick and Canada ...	3.93	20
217	Texas.	31013	31012	Houston, Orange.....	Texas and New Orleans	106.24	12
218	Oreg ..	44002	44002	Portland, Saint Joseph.....	Oregon Central	48.61	12
219	Ark ...	29002	29002	Helena, Clarendon	Arkansas Central	48.20	12
220	Ga.	15025	.....	Athens, Belton	Northeastern of Georgia	40.33	17
221	Va.	11020	.....	Fredericksburg, Orange C. H.	Royal Land Company	38.25	18
222	Cal ...	46019	46018	Visalia, Goshen	Visalia	8.37	18
223	Mich ..	24030	.....	East Saginaw, Saint Louis ..	Saginaw Valley and Saint Louis	33.23	17
224	S. C. .	14008	.....	Alston, Spartanburg C. H. ...	Spartanburg, Union & Columbia	66.12	17 1/2
225	Pa.	8073	8071	Marion Junction, Richmond Furnace, Mercersburg Junction, Mercersburg.	Cumberland Valley (lessees Southern Pennsylvania).	21.44	15

are conveyed, the accommodations for mails and agents, &c.—Continued.

Whole weight carried any distance for thirty days.			Average weight carried whole distance.		Size, &c., of mail-car or apartment.	Trips per week.	Pay per mile per annum.	Remarks.	Order.
Outward.	Inward.	Total.	30 days total.	Per day total.					
Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Feet and inches.		Dolls.		
1645	924	2569	2569	85	no apt.; no r. a.	12	50 00	Branch: main route \$135 (32); .50 m. increase.	182
1107	645	1752	1752	58	in b. c.; no r. a.	6	50 00	Branch: main route \$144 (48). In Oct., 1877.	183
785	671	1456	1033	34	in b. c.; no r. a.	6	50 00	\$50 m. m.; 12 trips in summer; .35 m. decrease. In Apr., 1877.	184
150	153	303	303	10	no r. a.	6	50 00	.95 m. increase. In Apr., 1877.	185
8967	4128	13095	9175	305	in b. c.; no r. a.	14	49 50		186
5877	4346	10223	7768	259	in b. c.; no r. a.	15	48 60	In Aug., 1877.	187
3384	7550	12934	7725	257	8.10 by 7.7, f. f., s. l.	6	48 60	In Oct., 1877.	188
9892	5757	15649	7649	254	13.7 by 5.1, f. f., s. l.	12	48 60	In Nov., 1877.	189
6669	2934	9603	7450	248	8.94 by 7.3, f. f., s. l.	7	48 60		190
13355	8383	21738	12301	410	12 by 7.2, f. f., s. l.	7½	48 24	Main route; branch \$36 (318). In May, 1878.	191
6425	4914	11339	7376	245	8.7 by 6.10, f. f., s. l.	9*	47 70	In Feb., 1878.	192
5756	3753	9509	6896	229	no apt.; no r. a.	6	47 70		193
5091	2706	7797	7553	251	in b. c.; no r. a.	18	46 80	In Apr., 1877.	194
6924	4826	11750	7525	250	8.10 by 7, f. f. (carriers)	26	46 17		195
13600	10422	24022	12033	401	in b. c.; no r. a.	9½	45 90	In Apr., 1878.	196
4430	3396	7826	6397	213	8.6 by 4.9; fixtures; no r. a.	12	45 90	In Apr., 1877.	197
2328	4102	6430	5949	198	in b. c.; no r. a.	7	45 80		198
10817	6460	17277	15629	320	10 by 8.10, f. f., s. l.	12	45 00	Main route; branch \$45 (270).	199
8754	5873	14627	13497	449	12.4 by 6.5, f. f., s. l.	7	45 00	Branch: main route \$100.80 (72).	200
1432	11469	12901	12843	421	in b. c.	6	45 00	.11 m. increase.	201
13774	5767	19541	11719	390	7 by 5, s. l.	7	45 00	Branch: main route \$54 (150).	202
10398	6225	16623	10222	340	11 by 6, f. f., s. l.	6	45 00	Main route; branch \$45 (263).	203
11144	5305	16449	9865	328	10 by 8.10, f. f., s. l.	12	45 00	1.40 m. decrease.	204
7654	9453	17107	9755	325	14 by 7.10, f. f., s. l.	6	45 00	In Oct., 1877.	205
7674	7321	14995	9096	303	9.6 by 5.9 (average), f. f., s. l.	6	45 00	In Mar., 1878.	206
6737	1909	8646	8230	274	in charge of conductor	7	45 00		207
17570	10950	28520	7705	256	13 by 7, f. f., s. l.	6	45 00	In Oct., 1877.	208
6689	3720	10409	7598	253	6 by 5, f. f., s. l.	6	45 00	1.16 m. decrease.	209
3357	2009	7366	7366	245	in b. c.; no r. a.	7	45 00	Branch: main route \$54 (150).	211
4079	5410	9489	7258	241	no apt.; no r. a.	72	45 00	Branch: main route \$99 (74). .85 m. increase. In Apr., 1877.	212
9532	3937	13469	7089	236	8.9 by 7.5, f. f., s. l. to Wood-land, 9.20 m.	9*	45 00	.14 m. increase.	213
6888	6346	13234	6937	230	in b. c.; no r. a.	21*	45 00	Main route; branches \$40.50 (304, 306). 22 m. increase. In Apr., 1877.	214
8354	6306	14660	6745	224	6.3 by 3.2, f. f., 3½ l. to New-ton, 11.76, 2 l. res. 13 m.	13½*	45 00	Main route; branch \$45 (257). \$100 slide service. In Apr., 1877.	215
2058	4641	6699	6699	223	in b. c.; no r. a.	6	45 00	In Apr., 1877. .11 m. increase.	216
5693	4180	9873	6322	210	7 by 7, f. f., s. l.	6	45 00	.60 m. decrease.	217
7215	3934	11149	6212	207	9.6 by 6.6, f. f., s. l.	6	45 00		218
4368	4786	9154	6135	204	9.4 by 6.5, f. f., s. l.	6	45 00		219
4184	3391	7575	6148	204	in b. c.; no r. a.	12	45 00	In Oct., 1877.	220
3757	3975	7732	5604	196	14 by 7.6, f. f., s. l.	6	45 00	In Sept., 1877.	221
3442	2316	5758	5758	192	in b. c.; no r. a.	7	45 00		222
4470	3005	7475	5177	172	7 by 5, f. f., s. l.	6	45 00	In Oct., 1877.	223
4631	4650	9281	4982	166	9 by 9, f. f., s. l.	6	45 00	In Oct., 1877.	224
4424	2560	6984	4929	164	8.3 by 7.7, f. f., s. l.	6	45 00	In Apr., 1877.	225

E.—Table showing the weight of the mails, the speed with which they

Order.	State.	Number of route.	New number of route.	Termini.	Corporate title of company carrying the mail.	Length of route.	Miles per hour.
						<i>Miles.</i>	
226	N. Y.	1244	6027	Cobleskill, Cherry Valley	Delaware and Hudson Canal	22.47	17
227	Tenn	19016		Tullahoma, McMinnville	Nashville, Chattanooga and Saint Louis.	35	12
228	Vt.	532	2013	White River Junction, Woodstock.	Woodstock	14.41	17
229	Ohio	21056		Saint Clairsville, Quincy Junction.	Bellaire and Saint Clairsville Narrow Gauge.	7.05	28
230	Kans	33017	33017	Florence, Eldorado.	Atchison, Topeka and Santa Fé (lessees Florence, Eldorado and Walnut Valley).	30.75	14
231	Pa.	8011	8011	Penn Haven Junction, Mount Carmel.	Lehigh Valley	52.84	17
232	La.	30002	30002	New Orleans, Donaldsonville	New Orleans and Texas	64.32	19
233	Vt.	403	2002	Montpelier, Barre.	Central Vermont	6.76	2
234	Pa.	8067		Lewisburg, Spring Mills.	Pennsylvania	42.38	13½
235	Conn	910	5013	Bethel, Hawleyville	Danbury and Norwalk	6.28	29
236	Cal	46015	46015	Elmira, Madison	Vaca Valley	29	26
237	Cal	46015		do	do	29	26
238	Cal	46002	46002	Gilroy, Trespinos	Southern Pacific	20.2	18.6
239	S. C.	14011		Spartanburg, Lynn	Spartanburg and Asheville.	28.5	13
240	Kans	33017		Florence, Eldorado.	Florence, Eldorado and Walnut Valley.	31.05	13
241	Pa.	8108		Lewistown Junction, Selins Grove Junction.	Pennsylvania (lessees Sunbury and Lewistown).	45	17
242	Mich	24039		Flint, Lansing	Chicago and Northeastern	50.18	27
243	Mass	646	3022	Greenfield, Turner's Falls	Fitchburg	4.37	16
244	Tex.	31014	31013	Jefferson, Pittsburg	East Line and Red River	49.20	15
245	N. Y.	1236	6101	Sidney Plains, New Berlin.	New York and Oswego Midland	24.84	12
246	Kans	33016	33020	Girard, Joplin	Joplin	37.3	20
247	Ill.	23059		Rock Island, Cable	Rock Island and Mercer County	17.90	13
248	Ky	20022		Harrodsburg, Harrodsburg Junction.	Southwestern	6.43	14
249	Wis	25030		Onalaska, La Crosse	Chicago and Northwestern	6.5	15
250	Wis	25028		Hudson, Clayton.	North Wisconsin	44	12
251	Mass	626	3023	South Acton Depot (n. o.) Hudson.	Fitchburg	9.19	20
252	Ky	20020		Flemingsburgh, Johnson's Junction.	Covington, Flemingsburgh and Pound Gap.	5.42	15
253	Nebr	34007	34007	Covington, Ponca	Covington, Columbus and Black Hills.	26.50	14
254	Utah	41005	41005	Salt Lake City, Stockton	Utah Western	40.5	12
255	N. Y.	1291	6023	Golden's Bridge, Mahopae	New York and Harlem	7.50	18
256	Nebr	34007		Covington, Ponca	Covington, Columbus and Black Hills.	26.51	14
257	N. J.	7025		La Fayette Junction, Branchville.	Sussex	6.24	22
258	Ind	22036		Switz City, Bedford	Bedford, Springville, Owensburg and Bloomfield.	41.04	12
259	Pa.	8016		Lumber Yard, Ebersvale	Lehigh Valley	6.23	25
260	Miss	18010		Natchez, Red Lick	Natchez, Jackson and Columbus		13
261	Mo	28029		Hannibal, Bowling Green	Saint Louis, Hannibal and Keokuk.	32.95	15
262	N. J.	7007		Mount Holly, Medford	Pennsylvania	6.50	
263	Cal	46016	46016	San Anselmo, San Quentin	North Pacific Coast	5.50	16
264	Pa.	8020		Blossburg, Arnot	Tioga	4.09	15
265	Ind	22038		Monon, Rensselaer	Indianapolis, Delphi and Chicago.	16.42	15

are conveyed, the accommodations for mails and agents, &c.—Continued.

Whole weight carried any distance for thirty days.			Average weight carried whole distance.		Size, &c., of mail-car or apartment.	Trips per week.	Pay per mile per annum.	Remarks.	Order.
Outward.	Inward.	Total.	30 days, total.	Per day, total.					
Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Feet and inches.		Dolls.		
4338	2694	7032	4908	160	in b. c.; no r. a.	6	45 00	In Apr., 1877.	226
4119	1969	6088	4822	160	in b. c.; no r. a.	6	45 00	In Oct., 1877.	227
3706	2762	6468	4796	159	in b. c.; no r. a.	12	45 00	.12 m. decrease.	228
1890	2905	4795	4795	159	in b. c.; no r. a.	24	45 00	In Mar., 1878.	229
3279	1487	4766	4668	155	13.6½ by 9.3½, f. f.; no r. a.	6	45 00	.30 m. decrease.	230
6350	4608	10958	4641	154	10 by 7, f. f., s. l.	9½	45 00	In Apr., 1877.	231
4785	2603	7388	4471	149	10 by 7, f. f., s. l.	6	45 00	.66 m. increase.	232
2698	1658	4356	4356	145	in b. c.; no r. a.	12	45 00	Branch; main route, \$200.20, (29). In Aug., 1877.	233
6052	4415	10467	4351	144	8.6 by 6.8, f. f., s. l.	8¾	45 00	\$.54 for 20.73 m. In Feb., 1878.	234
2696	1511	4207	4207	140	9.2 by 5.6, f. f., s. l.	6	45 00	Branch; main route \$99, (75). .27 m. increase. In Apr., 1877.	235
4482	2884	7366	4053	135	in b. c.; no r. a.	6	45 00		236
4419	2825	7244	4027	134	in b. c.; no r. a.	12	45 00	In Oct., 1877.	237
3235	1877	5112	4026	134	in b. c.; no r. a.	10*	45 00	Branch; main route \$57.60, (136).	238
2777	2218	4995	3934	131	7 by 5, f. f., s. l.	6	45 00	In Oct., 1877.	239
2570	1319	3889	3889	129	in b. c.; no r. a.	6	45 00	In Oct., 1877.	240
5603	6778	12381	3785	126	6.1 by 5.10, f. f., s. l.	6	45 00	In Oct., 1877.	241
4847	7324	12171	3739	124	12 by 7 (average), f. f., s. l.	6	45 00	In Jan., 1878.	242
2214	1676	3890	3710	123	no r. a.	18	45 00	In Mar., 1878; branch; main route \$153, (42).	243
3843	2430	6273	3641	121	9.6 by 6.6, f. f., s. l.	6	45 00		244
3279	2845	6124	3536	117	in b. c.	6	45 00	In Nov., 1877.	245
2427	2090	5417	3457	115	12.10 by 6 (average), f. f., s. l.	6	45 00	2.74 m. increase.	246
4481	1964	6445	3368	112	in b. c.; no r. a.	6	45 00	Service between Rock Island and Milan, 4 miles, covered by another route. In Mar., 1878.	247
1049	2043	3092	3092	103	10 by 10, fixtures; no r. a.	6	45 00	In July, 1878.	248
2089	996	3085	3085	102	in b. c.; no r. a.	12	45 00	In May, 1878.	249
3671	2564	6235	3065	102	8 by 7, f. f., s. l.	6	45 00	In Oct., 1877.	250
2639	1662	4301	3034	101	no apt.; no r. a.	12	45 00	\$.50 m. m.; .19 m. increase. In Apr., 1877.	251
1076	1961	3037	3037	101	in express car; no r. a.	12	45 00	In Mar., 1878.	252
2936	1984	4920	3008	100	in b. c.; no r. a.	6	45 00	.01 m. decrease.	253
2174	1172	3346	2964	98	in b. c.; no r. a.	6	45 00		254
2184	1437	3621	2894	97	in b. c.; no r. a.	6	45 00	In July, 1877.	255
2772	1846	4618	2747	91	7.10 by 5.10, f. f.; no r. a.	6	45 00	In Oct., 1877.	256
2636	1677	4313	2634	87	no r. a.	9*	45 00	In Apr., 1877; branch; main route, \$.45, (215).	257
3406	2948	6354	2502	83	10 by 6½, fixtures, s. l.	6	45 00	In July, 1878.	258
2453	1767	4220	2446	81	no r. a.	15*	45 00	Branch; main route, \$.72, (108). In Apr., 1877.	259
1915	2278	4193	2420	80	10 by 7.6, f. f., s. l.	7	45 00	In July, 1878.	260
2489	1700	4189	2380	79	12 by 9.6, f. f.; no r. a.	6	45 00	In Dec., 1877.	261
1494	1130	2624	2200	73	in b. c.; no r. a.	15*	45 00	In Apr., 1877.	262
2290	1761	4041	2116	70	11 by 6, f. f., s. l.	12	45 00	Branch; main route \$.45, (203).	263
1215	848	2103	2103	70	in b. c.; no r. a.	6	45 00	Branch; main route \$.53.10, (154). In Dec., 1877.	264
1258	767	2025	2025	67	in b. c.	6	45 00	In May, 1878.	265

E.—Table showing the weight of the mails, the speed with which they

Order.	State.	Number of route.	New number of route.	Termini.	Corporate title of company carrying the mail.	Length of route. <i>Miles.</i>	Miles per hour.
266	N. J.	7011		Rocky Hill, Monmouth Junction.	Pennsylvania	8	16
267	Tex.	31015	31014	Tyler, Big Sandy	Tyler Tap.	22.05	12
268	Mass.	745	3015	Newton Junction, Merrimac.	Boston and Maine	4.83	30
269	Mass.	754	3054	New Bedford, Fall River.	Fall River.	15	23
270	Cal.	46012	46012	Peters, Oakdale	Stockton and Copperopolis	19	17
271	Ill.	23061		El Dorado, Cave	Belleville and El Dorado	22.18	11
272	Ohio	21057		Washington C. H., Waynesville.	Columbus, Washington and Cincinnati.	38.06	15
273	Me.	2506		Lewiston, South Auburn	Grand Trunk of Canada	5.41	24
274	Mass.	753	3070	Ashburnham Depot, Ashburnham.	Ashburnham (G. C. Winchester, purchaser).	2.89	18
275	Pa.	8020		Tioga Junction, Lawrenceville.	Tioga	4.00	20
276	Conn.	910	5013	Branchville, Ridgefield	Danbury and Norwalk	4.34	20
277	Iowa.	27035		Burlington, Winfield.	Burlington and Northwestern	18.82	11
278	Pa.	8092		Berlin, Garrett	Buffalo Valley	8.53	15
279	Pa.	8020		Blossburg, Morris Run	Tioga	3.93	15
280	N. J.	7016		Egg Harbor City, May's Landing.	Camden and Atlantic	7.43	16
281	N. Y.	1805	6020	New York, Spuyten Duyvil	New York Central and Hudson River.	10	24
282	Mass.	743	3010	Wakefield, Peabody	Eastern	9.08	21
283	Wis.	25031		New Lisbon, Needah	Chicago, Milwaukee and Saint Paul.	12.76	16
284	Pa.	8012	8012	Hazle Creek Bridge, Audenreid.	Lehigh Valley	8.5	25
285	Pa.	8016		Tunnel F (n. o.), Eckley	do	2.23	25
286	Mass.	741	3008	Wenham, Essex	Eastern	5.54	18
287	Ohio	21055		Moxahala, New Lexington	Ohio Central	7.6	15
288	Pa.	8020	8111	Blossburg, Fall Brook	Fall Brook Coal Company	6.50	7
289	Cal.	46026	46025	Santa Cruz, Felton	Santa Cruz and Felton	8.37	10
290	Pa.	8089	8087	Bellwood, Lloydville	Bell's Gap.	8.84	10
291	Kans.	33006	33009	Junction City, Parsons	Missouri, Kansas and Texas	157.44	194
292	Kans.	33004	33007	Elwood, Hastings	Saint Joseph and Denver City	226.5	174
293	Pa.	8104		South West Junction, Uniontown.	Pennsylvania (operating Southwestern).	37.3	23
294	N. J.	7040		High Bridge, Port Oram	Central of New Jersey	25.32	23
295	Utah	41004	41004	Sandy Station, Bingham Cañon.	Bingham Cañon and Camp Floyd.	22.5	15
296	Tenn.	19018		Columbia, Lewisburgh	Duck River Valley	20.23	15
297	Mich.	24040		Saint Louis, Cedar Lake	Chicago, Saginaw and Canada	20.07	13
298	Iowa	27036		Newton, Monroe	Newton and Monroe	17.90	12
299	Iowa	27040		Adams Junction, Waukon	Waukon and Mississippi	22.98	8
300	Iowa	27038		Maple River Junction, Mapleton.	Chicago and Northwestern (leaves Maple River).	61.18	13
301	Cal.	46028	46027	Fulton, Guerneville	San Francisco and North Pacific.	16.09	30
302	Pa.	8100	8098	Norristown, Landsdale	Stony Creek	10.3	25
303	Iowa	27037		Judd, Lehigh	Crooked Creek Railway and Coal Company.	8.5	12
304	Pa.	8037	8036	Martinsburg Junction, Henrietta.	Pennsylvania (lessees)	6.51	14
305	Pa.	8103	8101	Wilkesbarre, Wanamie	Central of New Jersey	11.55	20
306	Pa.	8037	8036	Duncansville, Newry	Pennsylvania (lessees)	3	12

are conveyed, the accommodations for mails and agents, &c.—Continued.

Whole weight carried any distance for thirty days.			Average weight carried whole distance.		Size, &c., of mail-car or apartment.	Trips per week.	Pay per mile per annum.	Remarks.	Order.
Outward.	Inward.	Total.	30 days total.	Per day total.					
Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Feet and inches.		Dolls.		
1791	1432	3223	1989	66	in b. c.; no r. a.	12	45 00	In Apr., 1877.	268
953	1310	2263	1987	66	in b. c.; no r. a.	6	45 00	.50 m. increase.	267
1323	640	1963	1963	65	in b. c.; no r. a.	12	45 00	\$.120 m. n. .22 m. decrease. In Apr., 1877.	268
1054	983	2037	1951	65	in b. c.; no r. a.	20*	45 00	In Apr., 1877.	269
1392	858	2530	1876	62	in b. c.; no r. a.	6	45 00	Branch; main route \$45 (199).	270
1609	1351	3050	1839	61	in b. c.; no r. a.	6	45 00	In Aug., 1878.	271
2250	2032	4282	1848	61	13.2 by 6. f. f.; no r. a.	6	45 00	In July, 1878.	272
			1653	55	in b. c.; no r. a.	6	45 00	In May, 1877.	273
1078	548	1626	1626	54	in passenger car.	18	45 00	In Apr., 1877.	274
1108	914	2022	1574	52	in b. c.; no r. a.	12	45 00	Branch; main route \$53.10 (154). In Dec., 1877.	275
1067	487	1574	1574	52	no r. a.	14	45 00	.34 m. increase. In Apr., 1877. Branch; main route \$99 (75).	276
1332	779	2111	1521	50	in b. c.; no r. a.	6	45 00	In Nov., 1877.	277
541	951	1492	1492	49	10 by 8.8; no r. a.	6	45 00	.09 m. decrease. In Apr., 1877.	278
832	623	1455	1455	48	in b. c.; no r. a.	6	45 00	Branch; main route \$53.10 (154). In Dec., 1877.	279
1641	1203	2844	2844	47	in charge of conductor	12	45 00	60 days, in Apr. and July, 1877.	280
664	746	1410	1410	47	in b. c.; no r. a.	18	45 00	In Apr., 1877.	281
998	494	1492	1205	40	in b. c.	6	45 00	.54 m. increase. In Apr., 1877.	282
714	371	1085	1085	36	in b. c.; no r. a.	6	45 00	In May, 1878.	283
1091	793	1884	1077	35	10 by 7. f. f., s. l.	6	45 00	In Apr., 1877.	284
510	380	890	890	29	no r. a.	6	45 00	Branch; main route \$72 (108). In Apr., 1877.	285
569	322	891	891	29	in b. c.	6	45 00	.01 m. decrease. In Apr., 1877.	286
253	488	741	741	24	in locked desk.	6	45 00	In Nov., 1877.	287
363	319	682	682	22	in charge of conductor	6	45 00	In Apr., 1877. Branch; main route \$53.10 (154).	288
460	218	678	678	22	in b. c.; no r. a.	6	45 00		289
151	199	350	350	11	in locked box	6	45 00	.02 m. increase. In Apr., 1877.	290
17025	20319	37344	17667	588	13.9 by 7. f. f., s. l.	6	41 76	.94 m. increase.	291
24147	14352	38499	15474	512	11.9 by 7.6 (average), f. f., s. l.	6	41 76	.70 m. decrease.	292
9402	5746	15148	8955	298	28.7 by 8.3. f. f., s. l.	6	40 50	In Oct., 1877. .08 m. decrease.	293
2620	2352	4972	2620	87	in b. c.; no r. a.	6	40 50	In Dec., 1877.	294
1595	773	2368	2033	67	in b. c.; no r. a.	7	40 50		295
1282	1057	2339	1839	61	in b. c.; no r. a.	6	40 50	In May, 1878.	296
2205	1225	3430	1585	52	in b. c.; no r. a.	6	40 50	In Oct., 1877.	297
1080	910	1990	1428	47	in b. c.; no r. a.	6	40 50	In May, 1878.	298
1112	689	1781	1369	45	in b. c.; no r. a.	6	40 50	In May, 1878.	299
2404	1750	4154	1334	44	12.4 by 7.5, s. l.	6	40 50	In Jan., 1878.	300
942	558	1500	1167	38	in b. c.; no r. a.	6	40 50		301
834	944	1778	1053	34	in b. c.; no r. a.	12	40 50	.6 m. decrease. In Apr., 1877.	302
557	442	999	909	33	no apt.; no r. a.	6	41 10	In May, 1878.	303
470	444	914	914	29	in b. c.; no r. a.	6	40 50	Branch; main route \$45 (214). .19 m. decrease. In Apr., 1877.	304
478	332	810	810	27	in b. c.; no r. a.	6	40 50	In Apr., 1877.	305
480	355	844	844	27	in passenger car; no r. a.	6	40 50	Branch; main route \$45 (214). In Apr., 1877.	306

E.—Table showing the weight of the mails, the speed with which they

Order.	State.	Number of route.	New number of route.	Termini.	Corporate title of company carrying the mail.	Length of route. Miles.	Miles per hour.
307	Mass.	620	3005	Salem, Lawrence	Eastern	19.01	12
308	La.	30008	30008	Vicksburg, Monroe	Vicksburg, Shreveport and Texas.	78.16	13
309	Kans.	33015	33019	Ottawa, Burlington	Kansas City, Burlington and Santa Fé.	47.05	12
310	Ky.	20014	.....	Willard, Greenup	Eastern Kentucky	34.50	20
311	Pa.	8082	8080	Mechanicsburg, Dillsburg ..	Cumberland Valley	8.85	12
312	N. J.	7032	.....	Whiting, Long Beach	Tuckerton	38.06	25
313	Pa.	8087	8085	Mount Union, Broad Top ..	East Broad Top Railroad and Coal Company.	32.05	15
314	Cal.	46013	46013	Wilmington, Los Angeles ..	Southern Pacific	21.75	17
315	Cal.	46021	46020	Los Angeles, Santa Monica ..	Los Angeles and Independence ..	16.80	18
316	N. J.	7012	.....	Kinkora, Lewistown	Pennsylvania	10.81	30
317	N. H.	360	1016	Portsmouth, Dover	Eastern	11.60	26
318	Mich.	24041	.....	Humboldt, Republic	Marquette, Houghton and Ontonagon.	8.70	19
319	La.	30007	30007	Saint Francisville, Woodville ..	West Feliciana	28.23	9
320	Ill.	23058	.....	West Lebanon, Fisher	Havana, Rantoul and Eastern ..	52.50	10
321	Kans.	33014	33018	Fort Scott, Arcadia	Fort Scott, Southeastern and Memphis.	17.13	15
322	N. H.	351	1015	Wolfboro' Junction, Wolfboro'.	Eastern	12.11	25
323	Pa.	8049	8048	Westchester, intersection Pennsylvania Railroad.	Westchester	9	.....
324	Tex.	31013	.....	Honston, Orange	Texas and New Orleans	106.84	12
325	Ark.	29007	29004	Pine Bluff, Collins	Little Rock, Mississippi River and Texas.	100.64	10
326	N. J.	7035	.....	Atco, Williamstown	Williamstown	9	25
327	Pa.	8084	8082	Valley Junction, Ebbvale ..	Bachman Valley	12.97	14
328	La.	30006	30006	Clinton, Port Hudson	Clinton and Port Hudson	21	7
329	Tenn.	19015	.....	Victoria, Bridgeport	Nashville and Chattanooga ..	19.875	10
330	Tex.	31008	31008	Houston, Columbia	International and Great Northern.	50.75	10
331	La.	30005	30005	Baton Rouge, Livonia	Baton Rouge, Gross Tete and Opelousas.	30	8

are conveyed, the accommodations for mails and agents, &c.—Continued.

Whole weight carried any distance for thirty days.			Average weight carried whole distance.		Size, &c., of mail-car or apartment.	Trips per week.	Pay per mile per annum.	Remarks.	Order.
Outward.	Inward.	Total.	30 days, total.	Per day, total.					
Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Feet and inches.		Dolls.		
5345	4611	9956	5474	182	in b. c.	17½	40 00	.99 m. decrease. In Apr. 1877.	307
12346	5355	17701	12703	423	10.1 by 7.3, 11 by 7, f. f., a. l.	7	36 72	\$400 m. m. and ferrage. .66 m. increase.	308
7453	5806	13259	10294	343	18.6 by 9, 11 by 9, f. f., a. l.	6	36 00	.17 m. decrease. In July, 1878.	309
1132	3075	4207	2321	77	10.5 by 4.9, f. f., a. l.	6	36 00	In May, 1878.	310
2185	1489	3684	2334	77	locked box in passenger car.	6	36 00	In Apr., 1877.	311
2548	2009	4557	2150	71	8.1 by 7.1, f. f., a. l.	12	36 00	In Apr., 1877.	312
2534	1746	4280	1908	63	no r. a.	6	36 00	.18 m. decrease. In Apr., 1877.	313
891	1606	2497	1821	60	in b. c.; no r. a.	7	36 00		314
976	665	1641	1641	54	in b. c.; no r. a.	7	36 00		315
1516	1128	2644	1467	48	no r. a.	15*	36 00	In Apr., 1877.	316
467	401	868	868	28	in b. c.	6	36 00	.04 m. decrease. In Apr., 1877.	317
451	211	662	662	22	in b. c.; no r. a.	6	36 00	Branch; main route \$48.24 (191). In May, 1878.	318
928	425	1353	1321	44	in a box.	3	35 00	4 trips for a few weeks. .66 m. increase.	319
6910	6418	13328	4053	135	in b. c.; no r. a.	6	32 40	12 m. extension from Dec. 1, 1877. In Apr., 1878.	320
1020	721	1741	1189	39	in b. c.; no r. a.	6	31 50		321
1751	1217	2968	2627	87	in b. c.	6	30 00	Additional service in summer.	322
190	559	749	749	24	in charge of conductor.	6	30 00	In Apr., 1877.	323
5154	3328	8482	5490	183	7 by 7, f. f., a. l.	7	27 00	In Nov., 1877.	324
2620	2310	4930	1843	61	car, fixtures, a. l.	3	27 00		325
1038	745	1783	1124	37	7 by 6.9, fixtures; no r. a.	12	27 00	In Apr., 1877.	326
679	742	1421	771	25	12 by 9, f. f.; no r. a.	4	27 00	In Apr., 1877. .33 m. decrease.	327
376	396	772	564	18	no apt.; no r. a.	3	27 00		328
1042	1956	2998	2148	71	in b. c.; no r. a.	6	25 35	Pay on extension, 7.875 m., from Jan. 1, 1878.	329
2434	963	3397	2913	97	no apt.; no r. a.	3	25 00	.75 m. increase.	330
302	147	449	439	14	in passenger car.	3	18 00	2 m. increase.	331

N. B.—The index to Table E will be found immediately following Table F, and preceding the index to that table, commencing with page 166.

F.—Table showing the readjustment of the rates of pay per mile on railroad routes in States and on certain new routes the adjustment of the rates, based upon returns of the weight of and the number of trips per week, in accordance with the act of March 3, 1873; and with after July 1, 1876.

[ABBREVIATIONS.—f. f., fixtures and furniture; f. f. c., fixtures and furniture complete; m. c., mail-line; d. l., double line; t. l., triple line; q. l., quadruple line; m., miles; r. a., route-agents; m. m., mures in parentheses in the "Remarks" column refer to the order of the routes in this table.]

Order.	State.	Number of route.	New number of route.	Termini.	Corporate title of company carrying the mail.	Length of route.	Average weight of mails whole distances per day.	Miles per hour.
						Miles.	Pounds.	
1	N. J.	7004	7004	New York, West Philadelphia.	Pennsylvania	90	71,424	32
2	N. Y.	6017	6017	Albany, Buffalo.	New York Central and Hudson River.	298	51,685	29
3	N. Y.	6011	6011	New York, Troy.	New York Central and Hudson River.	150	49,287	30
4	Pa.	8001	8001	Philadelphia, Pittsburg.	Pennsylvania	333.6	51,053	30
5	N. Y.	6032	6032	Cleveland, Elyria.	Lake Shore and Michigan Southern.	25.7	46,567	28
6	N. Y.	6032	6032	Buffalo, Cleveland.	Lake Shore and Michigan Southern.	184.5	46,567	28
7	N. Y.	6032	6032	Millbury, Toledo.	Lake Shore and Michigan Southern.	8.5	42,771	28
8	N. Y.	6032	6032	Elkhart, Chicago.	Lake Shore and Michigan Southern.	101	33,393	28
9	Ohio	21007	21007	Elyria, Millbury.	Lake Shore and Michigan Southern.	74.98	26,943	28
10	N. Y.	1217	6017	Albany, Buffalo.	New York Central and Hudson River.	298	39,049	25
11	N. Y.	1211	6011	New York, Troy.	New York Central and Hudson River.	150	36,840	25
12	Ohio	21045	21045	Toledo, Elkhart.	Lake Shore and Michigan Southern.	133.6	24,039	28
13	Md.	10001	10001	Baltimore, Philadelphia.	Philadelphia Wilmington and Baltimore.	96	24,676	33

and Territories in which the contract-term expired June 30, 1878, and also in other States, the mails, the speed with which they are conveyed, the accommodations for mails and agents, the acts of July 12, 1876, and June 17, 1878, in the case of readjustments taking effect on and

catchers; r. p. o., railway post-office; apt., apartment; b. c., baggage-car; l., line or lines; s. l., single mail-messenger. A number followed by an asterisk (*) shows the equivalent in round trips. The fig-

Size, &c., of mail-car or apartment.	Trips per week.	Pay per mile per annum.	Former pay per mile per annum.	Amount of annual pay.	Former amount of annual pay.	Date of readjustment or adjustment.	Remarks.	Order.
<i>Feet and inches.</i>		<i>Dolla.</i>	<i>Dolla.</i>	<i>Dolla.</i>	<i>Dolla.</i>			
r. p. o., 60 by 8.11, 4 l.; 58.7 by 8.8, 1 l.; 46.4 by 8.4, 2 l.; 18 by 8, 1 l.; r. a. apt., 14.6 by 6.4, 1 l.; f. c. c.	884	1237 00	1135 40	111,330 00	103,980 00	Jan. 1, 1878	60 days in March and April, 1878. Main route; branches not weighed.	1
r. p. o., 55 by 9.11, 49.5 by 9, 2 l.; 60 by 9.1 l.; 50 by 9, 1 l.; 41.9 by 9.11; 47.8 by 8.10, 1 l. additional 228 m.; f. c. c.	464	979 70	392 50	223,371 00	176,565 00	Jan. 1, 1878	70 m. at \$949.70. 60 days in March and April, 1878.	2
r. p. o., 55 by 9.11, 49.5 by 9.2 l.; 60 by 9.11; 50 by 9.1 l.; 41.9 by 9, 1 l.; f. c. c.	564	922 70	568 20	133,878 60	82,830 60	Jan. 1, 1878	6 m. at \$168.30; not weighed. 60 days in Mar. and April, 1878.	3
r. p. o., 60 by 8.4 l.; r. a. apt., 15 by 8.1 l.; f. c. c.	444	897 50	805 60	317,356 00	302,681 60	Jan. 1, 1878	60 days in March and April, 1878.	4
r. p. o., 60 by 9.1, 1 l.; 50 by 9, 1 l.; 49.5 by 9, 1 l.; 49 by 9, 1 l.; 41.8 by 9, 1 l.; 16 by 9, 1 l.; f. c. c.	364	897 10	719 75	23,055 47	18,497 57	Jan. 1, 1878	Part: residue \$854.80 (7), \$887.10 (6), \$761.10 (8), \$376.70 (14), \$351.10 (17). 60 days in March and April, 1878.	5
r. p. o., 60 by 9.1, 1 l.; 50 by 9, 1 l.; 49 by 9, 2 l.; 41.8 by 9.1 l.; f. c. c.	364	887 10	708 50	163,669 95	130,718 25	Jan. 1, 1878	Part: residue \$854.80 (7), \$887.10 (5), \$761.10 (8), \$376.70 (14), \$351.10 (17). 60 days in March and April, 1878.	6
r. p. o., 60 by 9.1, 1 l.; 50 by 9, 1 l.; 49.5 by 9.1 l.; 49 by 9, 1 l.; 41.8 by 9, 1 l.; 16 by 9, 1 l.; f. c. c.	364	854 80	719 75	7,265 80	6,117 87	Jan. 1, 1878	Part: residue \$887.10 (6), \$887.10 (5), \$761.10 (8), \$376.70 (14), \$351.10 (17). 60 days in March and April, 1878.	7
r. p. o., 60 by 9.1, 1 l.; 50 by 9, 1 l.; 49 by 9, 1 l.; 49.5 by 9, 1 l.; 41.8 by 9, 1 l.; 36 by 9, 1 l.; f. c. c.	364	761 10	665 30	76,871 10	67,195 30	Jan. 1, 1878	Part: residue \$854.80 (7), \$887.10 (6), \$887.10 (5), \$376.70 (14), \$351.10 (17). 60 days in March and April, 1878.	8
r. p. o., 60 by 9.1, 1 l.; 50 by 9, 1 l.; 49 by 9, 1 l.; 49.5 by 9, 1 l.; 16 by 9, 1 l.; f. c. c.	13*	664 10	364 02	45,295 41	27,294 21	Jan. 1, 1878	60 days in March and April, 1878.	9
r. p. o., 46.10 by —, f. c. a. l.	13*	592 50	590 70	176,565 00	176,028 60	Jan. 1, 1877	60 days in Feb. and March, 1877.	10
r. p. o., 46.10 by —, f. c. a. l.	154	568 20	559 20	82,830 60	81,534 60	Jan. 1, 1877	6 m. at \$168.30, not weighed. 60 days in Feb. and March, 1877.	11
r. p. o., 50 by 9.11, 60 by 9, 1 l.; 49.5 by 9, 1 l.; 41.8 by 9, 1 l.; f. c. c.	104*	555 80	360 20	74,254 88	74,842 72	Jan. 1, 1878	60 days in March and April, 1878.	12
r. p. o., 50 by 9.1, f. c. d. l.	364*	480 50	492 90	46,128 00	47,318 40	July 1, 1877	Main route; branch #45. In March, 1877.	13

F.—Table showing the readjustment of the rates of pay per mile on railroad routes in

Order.	State.	Number of route.	New number of route.	Termini.	Corporate title of company carrying the mail.	Length of route.	Average weight of mails whole distance per day.	Miles per hour.
						Miles.	Pounds.	
14	N. Y.	6052	6052	Elyria, Millbury.....	Lake Shore and Michigan Southern.	79.3	16,064	28
15	Nebr.	34001	31001	Council Bluffs, Ogden	Union Pacific.....	1035.2	19,369	19
16	Md.	10013	10013	Bayview, Washington.	Baltimore and Potomac	46.10	15,567	27
17	N. Y.	6052	6052	Toledo, Elkhart.....	Lake Shore and Michigan Southern.	143	11,368	28
18	Mo.	28001	28001	Saint Louis, Atchison.	Missouri Pacific	329.75	11,824	25
19	Cal.	46001	46001	San Francisco, Ogden	Central Pacific.....	884.23	15,017	19
20	Ohio	21002	21002	Pittsburg, Chicago ...	Pittsburg, Fort Wayne and Chicago.	468.85	12,928	25
21	N. Y.	6001	6001	New York, Dunkirk ..	Erie	459	7,659	30
22	Mass.	601	3001	Boston, Portsmouth ..	Eastern	57.28	9,271	26
23	Me.	129	9	Portland, Portsmouth.	Eastern	52.56	7,950	26
24	Mass.	603	3016	Boston, Nashua	Boston and Lowell and Nashua and Lowell.	39.87	4,735	25
25	Mo.	28002	28002	Saint Louis, Bismarck	Saint Louis, Iron Mountain and Southern.	77.73	7,726	23
26	N. Y.	1259	6067	Troy North Adams...	Troy and Boston.....	50	5,382	25

States and Territories in which the contract-term expired June 30, 1878, &c.—Continued.

Size, &c., of mail-car or apartment.	Trips per week.	Pay per mile per annum.	Former pay per mile per annum.	Amount of annual pay.	Former amount of annual pay.	Date of readjustment or adjustment.	Remarks.	Order.
<i>Feet and inches.</i>	<i>Dolls.</i>	<i>Dolls.</i>	<i>Dolls.</i>	<i>Dolls.</i>				
r. p. o., 60 by 9, $\frac{1}{2}$ l.; 50 by 9, $\frac{1}{2}$ l.; 49 by 9, $\frac{1}{2}$ l.; 41.8 by 9, 1 l.; 16 by 9, $\frac{1}{2}$ l.; f. f. c.	36 $\frac{1}{2}$ *	376 70	649 12	29,872 31	51,475 21	Jan. 1, 1878	Part; residue \$854.80 (7), \$887.10 (8), \$897.10 (5), \$761.10 (8), \$351.10 (17). 60 days in March and April, 1878.	14
r. p. o., 50 by 9.9; f. f. c., a. l.	7	364 05	310 00	376,864 56	320,912 00	July 1, 1878		15
r. p. o., 45.10 by 8.8, 47 by 8.4, 46.3 by 8.7, 58 by 8.8; f. f. c., d. l.; r. a. apt., 14.8 by 8.7; f. f. c., a. l.	41 $\frac{1}{2}$ *	358 80	393 90	16,540 68	18,158 79	July 1, 1877	In March, 1877	16
r. p. o., 60 by 9, $\frac{1}{2}$ l.; 50 by 9, $\frac{1}{2}$ l.; 49 by 9, $\frac{1}{2}$ l.; 41.8 by 9, $\frac{1}{2}$ l.; 38 by 9, 1 l.; f. f. c.	36 $\frac{1}{2}$ *	351 10	251 80	50,207 30	36,007 40	Jan. 1, 1878	Part; residue \$854.80 (7), \$897.10 (5), \$887.10 (8), \$761.10 (8), \$376.70 (14). 60 days in March and April, 1878.	17
r. p. o., 50 by 9, f. f. c., d. l., 282 m. a. l. residue 47.75 m.	14 $\frac{1}{2}$ *	336 50	323 90	107,152 77	103,091 16	Oct. 1, 1877	Formerly 37 m. at \$275.12, and 47.75 m. at \$283.90; 37 m. at \$285.20, and 47.75 m. at \$296.50. In October, 1877.	18
r. p. o., 55.1 $\frac{1}{2}$ by 9.5 $\frac{1}{2}$; f. f. c., a. l.; 23.6 by 8.10 $\frac{1}{2}$; 31.6 $\frac{1}{2}$ by 8.10 $\frac{1}{2}$; f. f. c. bet. San Francisco and Lathrop, 83 m.; 23.6 by 8.10 $\frac{1}{2}$; f. f. c. bet. Sacramento and Roseville, 18.2 m.	8 $\frac{1}{2}$ *	327 88	269 50	289,921 33	222,129 98	July 1, 1878		19
r. p. o., 50 by—, f. f. c., a. l.; r. a. apt., 24.3 by 8.4, f. f. c., a. l. to Homewood, 34 m., and Crestline to Chicago, 189 m.	19 $\frac{1}{2}$ *	294 10	246 40	133,888 78	115,524 64	Jan. 1, 1878	60 days in March and April, 1878.	20
r. p. o., 50 by 10, f. f. c., d. l. to Horenellsville, 332 m.; a. l. residue, 127 m.; 16 $\frac{1}{2}$ by 7.4 $\frac{1}{2}$; f. f. c., a. l.	21 $\frac{1}{2}$ *	287 90	341 90	127,066 10	151,852 10	Jan. 1, 1878	Formerly \$301.90 on 127 m., \$247.90 on 127 m.; 60 days in March and April, 1878.	21
r. p. o., 42 by 8.7, 40 by 8.7 $\frac{1}{2}$; f. f. c., d. l.; r. a. apt., 29 by 8.7 $\frac{1}{2}$; f. f. c., d. l.	24	287 70	295 00	16,479 45	16,667 50	July 1, 1877	.78 m. increase. In April, 1877.	22
r. p. o., 42 by 8.7, 40 by 8.7 $\frac{1}{2}$; f. f. c., d. l.; r. a. apt., 29 by 8.7 $\frac{1}{2}$; f. f. c., a. l.	19 $\frac{1}{2}$ *	262 40	283 00	13,791 74	14,716 00	July 1, 1877	0.56 m. increase. In April, 1877.	23
r. p. o., 42.5 by 8.9, f. f. c., d. l.; r. a. apt., 23.5 by 6.8 (average), a. l.	27 $\frac{1}{2}$ *	225 50	230 00	8,990 68	9,660 00	July 1, 1877	2.13 m. decrease. In April, 1877.	24
24 by 9, 13.10 by 9.2 $\frac{1}{2}$; f. f. c., d. l.	20	220 60	144 00	17,147 23	11,193 12	Oct. 1, 1877	Main route; branch \$45 (244). In October, 1877.	25
r. p. o., 30 by 8.5, f. f. c., a. l.; r. a. apt., 15.6 by 6.10, 15.6 by 7. f. f. c., d. l.	30	212 35	112 50	10,617 50	5,625 00	July 1, 1877	Main route; branch \$45 (198). In April, 1877.	26

F.—Table showing the readjustment of the rates of pay per mile on railroad routes in

Order.	State.	Number of route.	New number of route.	Termini.	Corporate title of company carrying the mail.	Length of route.	Average weight of mail whole distance per day.	Miles per hour.
						<i>Miles.</i>	<i>Pounds.</i>	
27	Mass.	604	3021	Boston, Fitchburg	Fitchburg	51.73	5,250	12
28	Vt....	403	2002	Windsor, Burlington..	Central Vermont	119.87	2,905	15
29	Mo...	28026	28026	Bismarck, Texarkana	Saint Louis, Iron Mountain and Southern.	414.25	6,414	13
30	Mass.	646	3022	Fitchburg, North Adams.	Fitchburg	94.23	4,100	9
31	Mass.	602	3011	Boston, Salmon Falls..	Boston and Maine	71.50	3,950	20
32	Minn.	26011	26011	Winona, La Crosse....	Chicago, Milwaukee and Saint Paul.	28.75	4,003	20
33	Vt....	401	2001	Burlington, Rouse's Point.	Central Vermont	57.15	1,886	15
34	Mo...	28011	28011	Sedalia, Denison	Missouri, Kansas and Texas..	447	3,431	21
35	Me...	221	11	Salmon Falls, Portland	Boston and Maine	45	2,491	20
36	Pa....	8077	8075	Easton, Allentown....	Lehigh Valley	17.2	2,976	15
37	Vt....	405	2004	Bellows Falls, Windsor.	Central Vermont	26.34	2,972	15
38	N. Y..	6008	6008	Buffalo, Hornellsville.	Eric	91	3,328	20
39	Mo...	28014	28014	Hannibal, Sedalia	Missouri, Kansas and Texas ..	142.88	1,940	21
40	Conn	913	5014	New Haven, Williamantic.	Boston and New York Air-line.	54.14	3,167	15
41	Vt....	406	2003	Bellows Falls, Burlington.	Central Vermont	120.27	2,097	15
42	Mo...	28006	28006	Kansas City, Union Pacific Transfer.	Kansas City, Saint Joseph and Council Bluffs.	203.50	2,953	12
43	Pa....	8004	8004	Philadelphia, Bethlehem.	North Pennsylvania	54.46	2,890	15
44	N. Y...	1218	6018	Rochester, Niagara Falls.	New York Central and Hudson River.	76	2,875	20
45	Vt....	402	2010	White River Junction, Derby Line.	Connecticut, Passumpsic Rivers and Massachusetts Valley.	114.3	1,843	20

States and Territories in which the contract-term expired June 30, 1878, &c.—Continued.

Size, &c., of mail-car or apartment.	Trips per week.	Pay per mile per annum.	Former pay per mile per annum.	Amount of annual pay.	Former amount of annual pay.	Date of readjustment or adjustment.	Remarks.	Order.
<i>Feet and inches.</i>		<i>Dolls.</i>	<i>Dolls.</i>	<i>Dolls.</i>	<i>Dolls.</i>			
r. p. o., 30 by 8.9, f. f. c., a. l.; r. a. apt., 16 by 8.7 (average), f. f. t. l. to Ayer Junction, 36.07 m.; d. l. residue, 15.93 m.	27½*	211 45	199 00	10,938 30	10,348 00	July 1, 1877	.27 m. decrease. In April, 1877.	27
r. p. o., 42.4 by 8, f. f. c., d. l. White River Junction to Essex Junction, 97.20 m.; r. a. apt., 10 by 7, 14.13 m.	18	198 50	200 20	22,660 69	22,783 80	July 1, 1877	Formerly 26 m., at \$160.20; 22.67 m., at \$148.50; main route. Branch \$50 (170q). .87 m. increase. In April, 1877.	28
24 by 9, f. f., a. l. . . .	7	195 30	155 00	68,247 19	50,146 71	Oct. 1, 1877	Formerly 324.01 m., at \$111.60; 324.01 m., at \$156.24. In October, 1877.	29
r. p. o., 30 by 8.9, f. f. c., a. l.; r. a. apt., 16 by 8.7, f. f. t. l. to Ashburnham, 11 m.; d. l. residue, 82.10 m.	18½*	195 25	153 00	18,398 40	14,255 19	July 1, 1877	Formerly 18 m., at \$144. In April, 1877.	30
24.8 by 8, f. f., d. l. . .	12	193 80	193 25	13,856 70	13,751 67	July 1, 1877	Main route; branch \$45 (220a). 0.34 m. increase. In April, 1877.	31
r. p. o., 39.2 by 9.2, f. f. c., a. l.	12	188 80	160 00	5,428 00	4,600 00	Nov. 27, 1876	In June, 1877.	32
r. p. o., 42.4 by 8.5, f. f. c., d. l. Essex Junction to St. Albans, 24.5 m.; r. a. apt., — by —, a. l. residue, 32.65 m.	19*	179 60	193 00	8,631 64	9,471 50	July 1, 1877	Formerly 31 m. at \$153; 32.65 m., at \$129.60. 1.65 m. increase. In April, 1877.	33
r. p. o., 40 by 9, f. f. c., a. l.	9½*	175 70	155 00	77,806 11	70,504 95	Oct. 1, 1877	Formerly 158.5 m., at \$166.70, and 23.5 m., at \$128; 23.5 m., at \$144.56. In October, 1877.	34
r. p. o., 24.8 by 8, f. f., d. l.	12	172 20	131 25	7,749 00	5,798 62	July 1, 1877	0.82 m. increase. In April, 1877.	35
22 by 8.6, f. f., t. l. . .	48½*	159 40	162 00	2,741 68	2,786 40	July 1, 1877	In April, 1877.	36
24 by 6.10, f. f., d. l. .	18	159 40	184 50	4,198 59	4,612 50	July 1, 1877	1.34 m. increase. In April, 1877.	37
14.8½ by 9.9½, 13.1 by 10.8½, 11.9½ by 10.9½, f. f., d. l. to Attica, 31 m.; a. l. residue, 60 m.	26½*	154 80	225 00	14,086 80	20,475 00	Jan. 1, 1878	60 days in March and April, 1878.	38
r. p. o., 40 by 9, f. f. c., a. l.	12	152 30	156 80	21,760 62	22,403 58	Oct. 1, 1877	In October, 1877.	39
9.10 by 6.8, f. f., a. l.	16½*	152 10	146 70	8,234 69	8,215 20	July 1, 1877	1.86 m. decrease. In April, 1877.	40
r. p. o., 24.10 by 6.9, f. f., a. l.	18	150 90	163 80	18,148 74	18,404 10	July 1, 1877	Formerly 52 m., at \$141.30. 0.77 m. increase. In April, 1877.	41
40 by —, f. f., a. l. . .	13	148 50	134 10	30,219 75	27,289 35	Apr. 1, 1878	In April, 1878.	42
12 by 8, f. f., a. l. . . .	62	147 60	99 00	8,038 29	5,405 40	July 1, 1877	Main route; branch \$47.70 (180). 14 m. decrease. In April, 1877.	43
30 by 8.4, f. f., a. l. . .	32½*	147 60	165 60	11,217 60	12,585 60	July 1, 1877	In April, 1877.	44
r. p. o., 23 by 6.10, f. f., a. l.	12	142 17	133 17	16,250 03	12,999 83	July 1, 1877	Combined weighing in April and August, 1878. 0.57 m. decrease.	45

F.—Table showing the readjustment of the rates of pay per mile on railroad routes in

Order.	State.	Number of route.	New number of route.	Termini.	Corporate title of company carrying the mail.	Length of route.		Average weight of mails whole distance per day.	Miles per hour.
						Miles.	Pounds.		
46	Tex...	31006	31006	Longview, Houston...	International and Great Northern.	237.50	2,957	23	
47	Pa....	8010	8010	East Pennsylvania Junction, Waverly.	Lehigh Valley.....	189.57	2,319	25	
48	Kans.	33001	33001	Kansas City, Cheyenne.	Kansas Pacific.....	745	2,180	24	
49	Mass.	3041	3041	Middleborough, Hyannis.	Old Colony.....	45.29	1,838	25	
50	Tex...	31001	31001	Houston, Galveston...	Galveston, Houston and Henderson.	51.5	2,627	18	
51	N. Y...	1213	6013	Syracuse, Rochester...	New York Central and Hudson River.	104	2,167	23	
52	Cal...	46010	46010	Lathrop, Goshen.....	Central Pacific.....	146.30	2,496	24	
53	Kans.	33013	33016	Topeka, Kansas City...	Atchison, Topeka and Santa Fé.	68.20	2,496	22	
54	N. Y...	1279	6054	North Bennington, State Line.	Central Vermont.....	2	2,055	.....
55	Kans.	33001	33001	Kansas City, Denver..	Kansas Pacific.....	639	2,342	25	
56	Kans.	33013	33013	Topeka, Kansas City...	Atchison, Topeka and Santa Fé.	68.84	1,889	22	
57	N. H...	252	1005	Concord, Wells River.	Boston, Concord and Montreal	94.01	1,630	25	
58	Tex...	31003	31003	Houston, Denison City	Houston and Texas Central...	337.45	1,824	20	
59	Vt....	2015	2015	North Bennington, State Line.	Bennington and Rutland.....	1.85	1,631	20	
60	Cal...	46003	46003	Roseville, Redding...	Central Pacific.....	151.45	1,706	22	
61	Del...	9501	9501	Wilmington, Delmar..	Philadelphia, Wilmington and Baltimore.	97.02	1,535	25	
62	Tex...	31009	31009	Shreveport, Ft. Worth	Texas and Pacific.....	220.04	1,440	17½	
63	Kans.	33007	33007	Atchison, Pueblo.....	Atchison, Topeka and Santa Fé.	618.56	2,002	28	
64	N. Y...	1212	6012	Troy, Schenectady...	New York Central and Hudson River.	22	1,396	24	
65	Vt....	2015	2015	Rutland, Bennington..	Bennington and Rutland.....	57.16	1,395	20	
66	Kans.	33007	33010	Atchison, Pueblo.....	Atchison, Topeka and Santa Fé.	618.85	2,369	24	
67	Conn.	910	5013	South Norwalk, Danbury.	Danbury and Norwalk.....	23.65	879	30	
68	Mass.	3039	3039	South Braintree Junction, Newport.	Old Colony.....	61.16	1,324	25	

States and Territories in which the contract-term expired June 30, 1878, &c.—Continued.

Size, &c., of mail-car or apartment.	Trips per week.	Pay per mile per annum.	Former pay per mile per annum.	Amount of annual pay.	Former amount of annual pay.	Date of readjustment or adjustment.	Remarks.	Order.
<i>Feet and inches.</i>		<i>Dolls.</i>	<i>Dolls.</i>	<i>Dolls.</i>	<i>Dolls.</i>			
13.10 by 7.9, f. f., s. l.	7	141 08	135 00	33,506 50	31,860 00	July 1, 1878	Main route; branches \$42.75 (263), and \$42.75 (272). 1½ m. increase.	46
22 by 8.6, f. f., t. l. to Mauch Chunk, 29.5 m.; d. l. thence to Penn Haven, 7.5 m.; s. l. residue, 152.57 m.	15½	139 50	146 70	26,445 01	27,809 91	July 1, 1877	In April, 1877.....	47
29.6 by 9.3, f. f., 639 m.; 12 by 7, f. f., 106 m., s. l.	7	137 70	171 00	102,586 50	127,395 00	Oct. 1, 1877	Main route; branch not weighed. In October, 1877.	48
14 by 8.4, 14 by 8.4, 10.2 by 6.6, 10.2 by 6.6, f. f., d. l.	12	136 90	146 80	6,200 20	6,648 57	July 1, 1877	In December, 1877.....	49
16 by 7, 16 by 7, 16 by 6.9, f. f., d. l.	14	136 80	145 00	7,045 20	7,467 50	July 1, 1878	.....	50
18 by 8.9, f. f., s. l.	27½	136 80	135 00	14,227 20	14,040 00	July 1, 1877	In April, 1877.....	51
23.6 by 8.10, 31.63 by 8.10½, f. f., s. l.	7	135 09	72 00	19,763 66	10,433 52	July 1, 1878	1.39 m. increase.....	52
23.2 by 9.3½, f. f., s. l.	10½	135 09	129 60	8,942 95	8,662 46	July 1, 1878	2.64 m. decrease.....	53
.....	.....	135 00	54 00	270 00	108 00	July 1, 1877	Branch; main route \$92.70 (76). In April, 1877.	54
24.1½ by 9.4, 30.11 by 9.5, f. f., s. l.	7	132 53	137 70	84,686 67	87,990 30	July 1, 1878	.....	55
23.2 by 9.3½, f. f. c., s. l.	7	129 60	67 50	8,921 66	4,646 70	Oct. 1, 1877	In October, 1877.....	56
17 by 6.8, f. f., d. l. to Plymouth, 51 m.; s. l. residue.	134*	127 90	125 00	11,593 77	13,160 00	July 1, 1877	Formerly \$1,410 per annum for m. m. service. 43.01 m., at \$117.90. 0.01 m. increase.	57
14 by 7.3, f. f., s. l.	7	120 55	125 10	40,679 59	42,227 50	July 1, 1878	0.10 m. decrease.....	58
18 by 7, f. f., s. l.	15*	117 90	.....	.....	.....	Sept. 10, 1877	Branch; main route \$107.10 (65).	59
23.6 by 8.10½, f. f., s. l.	6	115 43	121 50	17,481 87	18,401 17	July 1, 1878	.....	60
20 by 9, 24 by 9, f. f., d. l. to Wyoming, 51 m.; s. l. residue, 46.02 m.	12	113 40	141 30	11,002 06	13,333 95	July 1, 1877	Formerly 13.02 m., at \$112.50. In April, 1877.	61
9.4 by 6.8, 16 by 7.8, f. f., s. l.	124*	109 80	90 00	24,160 39	19,717 20	Oct. 24, 1876	0.96 m. increase.....	62
23.2 by 9.3½, f. f. c., s. l.	7	108 00	54 00	70,804 53	35,402 26	Oct. 1, 1877	Formerly 10.83 m. at \$67.50; 148.15 m. at \$135; 54.6 m. extension from Nov. 1, 1875; 82.72 m. extension from Mar. 16, 1876. Main route; branch \$80.10 (96). In October, 1877.	63
In b. c.; no r. a.	23*	107 10	73 80	2,356 20	1,623 60	July 1, 1877	In April, 1877.....	64
18 by 7, f. f., s. l.	15*	107 10	.....	.....	.....	Sept. 10, 1877	Main route; branch \$117.90 (59). In January 1878. New.	65
23.2 by 9.3½, f. f., s. l.	8½*	106 71	108 00	69,996 37	70,804 53	July 1, 1878	Formerly 148.15 m., at \$135; 148.44 m., at \$133.38. Branch made rt. 2311 (98). 0.29 m. increase.	66
11.2 by 6, f. f., s. l.	17*	83 70	90 00	1,979 50	2,326 50	July 1, 1877	Main route; branches \$45. 0.15 m. increase.	67
14 by 8.4, 14 by 8.4, 10.2 by 6.6, 10.2 by 6.6, f. f., d. l. to Middleborough, 22.62 m.; in b. c. residue.	18½*	104 40	107 10	6,385 10	6,550 23	July 1, 1877	In December, 1877....	68

F.—Table showing the readjustment of the rates of pay per mile on railroad routes in

Order.	State.	Number of route.	New number of route.	Termini.	Corporate title of company carrying the mail.	Length of route.	Average weight of mails whole distance per day.	Miles per hour.
						<i>Miles.</i>	<i>Pounds.</i>	
69	Tex.	31009	31009	Shreveport, Ft. Worth	Texas and Pacific.....	220.04	1,440	17
70	Utah	41003	41003	Ogden City, Franklin	Utah Northern.....	79.94	1,370	12
71	Tex.	31010	31010	Marshall, Texarkana..	Texas Pacific.....	74.66	1,370	20
72	N. Y.	1219	6022	New York, Chatham..	New York and Harlem..	130.5	1,125	26
73	Oreg.	44001	44001	Portland, Roseburgh..	Oregon and California.....	199.10	1,224	18
74	Tex.	31002	31002	Harrisburg, San Antonio.	Galveston, Harrisburg and San Antonio.	215	1,224	25
75	Ark.	29001	29001	Memphis, Little Rock	Memphis and Little Rock.....	134.21	1,757	17
76	N. Y.	1279	6054	Chatham Village, Rutland.	Central Vermont.....	111.30	1,087	20
77	Me.	12	10	Portland, Lunenburg.	Portland and Ogdensburg.....	114.05	920	22
78	Nebr.	34004	34004	Omaha, Oreopolis.....	Burlington and Missonri River (in Nebraska).	17.76	1,136	16
79	Nebr.	34002	34002	Plattsmouth, Kearney Junction.	do.....	190.8	1,125	21
80	Pa.	8063	8063	Pittsburgh, Cumberland.	Pittsburgh and Connellsville..	150.1	957	27
81	N. Y.	1216	6016	Buffalo, Lewiston.....	New York Central and Hudson River.	29	956	21
82	Tex.	31007	31007	Palestine, Austin.....	International and Great Northern.	183.84	950	20
83	Colo.	38001	38001	Denver, El Moro.....	Denver and Rio Grande.....	209.2	1,658	20
84	Conn.	901	5001	Norwich, Worcester..	New York and New England (lessees Norwich and Worcester).	59.65	936	21
85	Colo.	38006	38006	Cucharas, La Veta.....	Denver and Rio Grande.....	22.55	915	21
86	N. Y.	6053	6053	Rouse's Point, Ogdensburg.	Ogdensburg and Lake Champlain.	119	888	26
87	Va.	11005	11005	Richmond, Huntington	Chesapeake and Ohio.....	421.14	806	20
88	Tex.	31007	31007	Palestine, Austin.....	International and Great Northern.	183.83	956	18
89	Nev.	45001	45001	Virginia City, Reno....	Virginia and Truckee.....	51.75	946	20
90	N. Y.	6103	6103	Corning, Geneva.....	Fall Brook Coal Company (operating Syracuse, Geneva and Corning).	62.41	854	22
91	Colo.	38006	38004	Cucharas, La Veta.....	Denver and Rio Grande.....	22.55	915	21
92	N. Y.	6066	6066	Rouse's Point, Canada Line.	Champlain and Saint Lawrence	22.15	815	25
93	N. H.	261	1006	Groveton, Wells River.	Boston, Concord and Montreal	54.12	811	25
94	Ark.	29001	29001	Memphis, Little Rock.	Memphis and Little Rock.....	135	1,510	16

States and Territories in which the contract-term expired June 30, 1878, &c.—Continued.

Size, &c., of mail-car or apartment.	Trips per week.	Pay per mile per annum.	Former pay per mile per annum.	Amount of annual pay.	Former amount of annual pay.	Date of readjustment or adjustment.	Remarks.	Order.
<i>Feet and inches.</i>		<i>Dolls.</i>	<i>Dolls.</i>	<i>Dolls.</i>	<i>Dolls.</i>			
9.4 by 6.8, 16 by 7.8.	123*	104 31	109 80	22,932 37	24,160 39	July 1, 1878	.96 m. increase	69
15 by 6.6, f. f., s. l.	7	100 89	83 00	8,065 14	5,036 22	July 1, 1878	.....	70
16 by 7.8, f. f., s. l.	7	100 89	150 00	7,532 44	11,100 00	July 1, 1878	.66 m. increase	71
20.1 by 8.6, 20.6 by 8, f. f., s. l.	11½	95 40	102 70	12,949 70	13,402 35	July 1, 1877	\$500 per annum for transportation of messengers to Forlham. In April, 1877.	72
20 by 9, f. f., s. l.	6	94 91	90 00	18,896 58	17,919 00	July 1, 1878	.....	73
11.3 by 7.2, 12.4 by 9.2, f. f., s. l.	6	94 91	75 60	20,405 65	17,699 85	July 1, 1878	13.4 m. extension from Sept. 1, 1875; 46.1 m. extension from April 10, 1877. .30 m. increase.	74
22.8 by 8.9, f. f., s. l.	7	93 71	90 00	12,576 81	12,078 90	July 1, 1878	.....	75
15.4 by 6.4 (average), f. f., s. l.	12	92 70	112 50	10,317 51	12,521 25	July 1, 1877	Main route; branch \$135 (54). Route divided from August 21, 1877. In April, 1877.	76
12.4 by 6.8, f. f., d. l. to Upper Bartlett, 72 m.; s. l. residue.	9½	92 71	135 00	10,573 57	14,734 25	July 1, 1877	2.5 m. decrease. In April, 1877.	77
18.5 by 8.8, f. f., s. l.	6	90 63	87 50	1,609 58	1,197 45	July 1, 1878	.02 m. increase	78
18.3 by 8.9, f. f., s. l.	6	90 63	83 00	17,292 20	12,007 80	July 1, 1878	.20 m. decrease	79
14.6 by 8.6, f. f., s. l.	14½	87 30	76 50	13,103 73	11,482 65	Feb. 1, 1878	Main route; branches \$45. In February and March, 1878.	80
In b. c.; no r. a.	24	87 30	87 50	2,531 70	1,957 50	July 1, 1877	In April, 1877	81
13 by 7.2, s. l.	7	87 30	50 00	16,049 23	9,929 61	Jan. 1, 1877	Pay on 44.44 m. extension from Aug. 20, 1876. 18.40 m. from Jan. 1, 1877. In December, 1877.	82
17.9 by 7.4, f. f., s. l. to Ucharas, 169.5 m.; in charge of conductor, residue, 39.7 m.	7	87 21	100 80	18,244 33	21,087 36	July 1, 1878	Main route; branch \$50.85 (141).	83
12 by 7, f. f., s. l.	18	86 40	76 50	5,153 76	4,590 00	July 1, 1877	0.35 m. decrease. In April, 1877.	84
17.9 by 7.4, f. f., s. l. Through mail-room 9 by 7.4.	7	85 50				Mar. 16, 1877	New	85
13 by 7, f. f., s. l.	9*	84 60	78 30	10,067 40	9,317 70	Mar. 1, 1878	In March, 1878	86
18.6 by 8.5, f. f., s. l.	12	83 70	81 00	35,249 41	30,773 56	July 1, 1877	60 days in April and July, 1877. 148.39 m. at \$58.50 formerly.	87
19.6 by 8.10, 12.5 by 7.1, 13 by 7.3, f. f., s. l.	7	82 94	87 30	15,255 15	16,049 23	July 1, 1878	0.09 m. increase	88
12 by 8, f. f., s. l.	7	82 94	72 00	4,292 14	3,726 00	July 1, 1878	.....	89
10.11 by 6.10, f. f., s. l.	6	82 80				Jan. 10, 1878	New. In Aug., 1878	90
17.9 by 7.4, f. f., s. l. Through mail-room 9 by 7.4.	7	81 23	85 50	1,831 73	1,928 02	July 1, 1878	.....	91
In b. c.; no r. a.	12	81 00	63 90	182 25	143 77	Apr. 1, 1878	In May and June, 1878.	92
17 by 6.8, f. f., s. l.	12	81 00	90 00	4,383 72	4,870 80	July 1, 1877	6 trips additional in summer between Groveton and Lancaster. In April, 1877.	93
12 by 7.6, f. f., s. l. to Sept. 30, 1877. 23 by 8 from Oct. 1, 1877.	7	80 64	75 60	11,453 40	10,206 00	Feb. 1, 1877	In February, 1877. 2 m., \$100.80.	94

F.—Table showing the readjustment of the rates of pay per mile on railroad routes in

Order.	State.	Number of route.	New number of route.	Termini.	Corporate title of company carrying the mail.	Length of route.	Average weight of mails whole distance per day.	Miles per hour.
						Miles.	Pounds.	
95	Mass.	660	3057	Worcester, Winchendon.	Boston, Barre and Gardner....	38.04	577	22
96	Kans.	33007	33007	Newton, Wichita....	Atchison, Topeka and Santa Fé.	27.09	799	21
97	Pa....	8030	8030	Harrisburg, Martinsburg.	Cumberland Valley.....	94	797	21
98	Kans.	33007	33011	Newton, Wichita....	Atchison, Topeka and Santa Fé.	27.69	879	22
99	Cal...	46014	46014	Huron, Yuma.....	Southern Pacific.....	330.29	1,217	18
100	Mo...	28034	28034	Bismarck, Columbus..	Saint Louis, Iron Mountain and Southern.	119.27	769	23
101	Utah...	41002	41002	Salt Lake City, York..	Utah Southern.....	75	840	15
102	N. Y..	1242	6053	Rouse's Point, Ogdensburg.	Ogdensburg and Lake Champlain.	119	743	26
103	Cal...	46006	46006	Sacramento, San Francisco.	California Pacific.....	86.72	835	20
104	N. H..	260	1014	Brock's Crossing, North Conway.	Portsmouth, Great Falls and Conway.	71.11	738	23
105	Kans.	33003	33005	Cherryvale, Independence.	Leavenworth, Lawrence and Galveston.	10.87	787	25
106	Pa....	8016	8016	Penn Haven Junction, Tomhicken.	Lehigh Valley.....	24.10	649	25
107	Cal...	46011	46011	San Francisco, Cloverdale.	San Francisco and North Pacific.	90	731	30
108	La....	30003	30003	New Orleans, Morgan City.	Morgan's Louisiana and Texas.	80.07	1,152	25
109	Cal...	46002	46002	San Francisco, Soledad.	Southern Pacific.....	143.8	1,142	21
110	Minn.	26006	26006	White Bear Lake, Albert Lea.	Minneapolis and Saint Louis..	123.35	634	20
111	Vt....	401	2011	Lunenburg Junction, Johnson.	Portland and Ogdensburg.....	78.19	627	22
112	Kans.	33009	33012	Atchison, Lincoln.....	Atchison and Nebraska.....	151.33	702	20
113	Mass.	627	3020	Ayer, Lowell.....	Boston and Lowell and Nashua and Lowell.	16.39	428	25
114	Tex...	31011	31011	Sherman, Texarkana..	Texas and Pacific.....	153.22	688	20
115	Vt....	2011	2011	Lunenburg Junction, Swanton.	Portland and Ogdensburg.....	118.14	679	22
116	Utah...	41001	41001	Ogden City, Salt Lake City.	Utah Central.....	36.50	676	18

States and Territories in which the contract-term expired June 30, 1878, &c.—Continued.

Size, &c., of mail-car or apartment.	Trips per week.	Pay per mile per annum.	Former pay per mile per annum.	Amount of annual pay.	Former amount of annual pay.	Date of readjustment or adjustment.	Remarks.	Order.
<i>Feet and inches.</i>		<i>Dolls.</i>	<i>Dolls.</i>	<i>Dolls.</i>	<i>Dolls.</i>			
10 by 6.6, f. f., d. l.	12	80 20	78 75	3,050 80	2,913 75	July 1, 1877	1.04 m. increase. In April, 1877.	95
Extra car 8 by 3.4.								
23.2 by 9.3½, f. f., s. l.	7	80 10	63 00	2,169 90	1,706 67	Oct. 1, 1877	Branch: main route \$108 (63). In October, 1877.	96
13.8 by 8.4., f. f., s. l.	18	80 10	69 30	7,529 40	6,514 20	July 1, 1877	In April, 1877	97
13.6½ by 9.3½, f. f., s. l.	7	79 52	80 10	2,201 90	2,169 90	July 1, 1878	Formerly branch of route 33007 (66). .60 m. increase.	98
In b. c. to Goshen, 40 m.; 23.6 by 8.10½, 31.6½ by 8.10½, f. f., s. l., Goshen to Los Angeles; 11.9 by 8.5, f. f., s. l., Los Angeles to Yuma.	7	79 20				July 1, 1877	54½ m. from Nov. 1, 1875. From May 5, 1877, bet. Colton and Yuma; residue of route from July 1, 1877. New.	99
13.10 by 9.2½, f. f., s. l.	13	79 20				Oct. 1, 1877	Formerly part of route 28002. In October, 1877.	100
15 by 8, f. f., s. l. . . .	7	78 66	56 70	5,899 50	3,985 20	July 1, 1878	Formerly 27 m. at \$46.80.	101
13.2 by 7.2, f. f., s. l.	9*	78 30	112 50	9,317 70	13,387 50	July 1, 1877	In April, 1877	102
10 by 8.10, f. f., s. l., 8.9½ by 7.3½, f. f., Davisville to Sacramento, 13.26 m.	13½*	77 81	81 90	6,747 68	7,102 36	July 1, 1878		103
20 by 8.7½, f. f., s. l.	6	77 40	54 00	5,503 91	3,785 94	July 1, 1877	Formerly \$50 per annum for m. m. service. Additional trips from July 29 to Oct. 8, 1877. 1 m. increase. In April, 1877.	104
18 by 8.9, f. f., s. l. . .	6	76 10	50 40	827 20	504 00	July 1, 1878	0.87 m. increase	105
No r. a. to Hazle Creek bridge, 9 m.; 10 by 7, f. f., d. l., thence to Hazleton, 7 m., 1½ l. res. 8.1 m.	11½*	73 80	72 00	1,778 58	1,735 20	July 1, 1877	Main route; branches \$45. In April, 1877.	106
12.9 by 8.10, f. f., s. l.	7	73 53	67 50	6,617 70	6,075 00	July 1, 1878		107
11.11 by 6.5, (av.), f. f., s. l.	7	73 19	79 20	5,860 32	6,563 60	July 1, 1878	2.93 m. decrease	108
17 by 9, f. f., s. l. . . .	12½*	73 19	57 60	10,524 72	8,282 88	July 1, 1878	Main route; branch \$42.75 (266).	109
22 by 9.3½, f. f., s. l.	12½*	72 90	50 00	8,053 31	2,050 00	Nov. 16, 1877	41 m., contract \$50 per m.; 49.91 m. at \$72.90 from Nov. 1, 1877. 32.44 m. at \$72.90 from Nov. 16, 1877. In July, 1877.	110
14.9 by 6.8, f. f., s. l.	6	72 90	125 00	5,700 05	9,831 25	July 1, 1877	0.62 m. decrease. In April, 1877.	111
20 by 9, f. f., s. l. . . .	6	72 68	75 00	10,998 66	11,421 00	July 1, 1878	0.95 m. decrease	112
8.7 by 6.9, f. f., d. l.	12	72 10	50 00	1,181 71	850 00	July 1, 1877	0.61 m. decrease. In April, 1877.	113
14 by 7.10, 15 by 7.5½, f. f., s. l.	6	71 82	51 00	11,147 90	10,313 53	July 1, 1878	8.2 m. extension at \$75.60 from Aug. 1, 1876. 89.77 m. extension from Oct. 20, 1876. .25 m. increase.	114
13.7 by 6.6, 15.6 by 6.6, f. f., s. l.	9½*	71 10	72 90	8,399 75	8,612 40	Aug. 1, 1877	In April, 1878	115
14.3 by 8.8½, f. f., d. l.	14	70 97	81 00	2,590 40	2,956 50	July 1, 1878		116

F.—Table showing the readjustment of the rates of pay per mile on railroad routes in

Order.	State.	Number of route.	New number of route.	Termini.	Corporate title of company carrying the mail.	Length of route.	Average weight of mails whole distance per day.	Miles per hour.
						Miles.	Pounds.	
117	N. Y.	1804	6095	Saratoga Springs, North Creek.	Adirondack.....	57.96	574	22
118	Tex.	31005	31005	Bremond, Waco.....	Houston and Texas Central...	44.09	658	14
119	Dak.	35001	35001	Sioux City, Yankton...	Dakota Southern.....	61.71	615	15
120	Nev.	45002	45002	Palisades, Eureka.....	Eureka and Palisades.....	91.27	425	22½
121	Kans.	33002	33003	Atchison, Waterville...	Union Pacific (Central Branch)	100.50	591	21
122	Tex.	31004	31004	Hempstead, Austin...	Houston and Texas Central...	115.20	591	18
123	Vt.	522	2009	Richford, Newport...	Missisquoi and Clyde River...	31.95	505	30
124	Wash.	43001	43001	Kalama, Wilkeson.....	Northern Pacific.....	136.33	495	19
125	N. H.	257	1011	Nashua, Greenfield...	Boston and Lowell and Nashua and Lowell.	26.58	490	25
126	N. J.	7015	7015	Camden, Atlantic City	Camden and Atlantic.....	60	479	25
127	Vt.	408	2006	Saint Albans, Canada Line.	Central Vermont.....	17.10	478	25
128	Cal.	46012	46012	Stockton, Milton.....	Stockton and Copperopolis...	30	520	17
129	Kans.	33004	33007	Elwood, Hastings.....	Saint Joseph and Denver City.	226.5	512	17½
130	Kans.	33001	33002	Lawrence, Leavenworth.	Kansas Pacific.....	35.05	501	25
131	N. Y.	1268	6072	Ithaca, Sayre.....	Geneva, Ithaca and Sayre (late Geneva, Ithaca and Athens).	34.60	462	23
132	N. J.	7006	7006	Camden, Hightstown.	Pennsylvania.....	51.75	454	35
133	Wash.	43001	43001	Kalama, Wilkeson.....	Northern Pacific.....	136.33	495	19
134	N. Y.	1293	6077	Ithaca, Geneva.....	Geneva, Ithaca and Sayre (late Geneva, Ithaca and Athens).	40.25	449	23
135	Ky.	20021	20021	Cincinnati, Somerset..	Cincinnati Southern.....	160.26	448	24
136	Cal.	46017	46017	Los Angeles, Santa Anna.	Southern Pacific.....	28.6	470	17
137	Mass.	742	3009	Lynn, Marblehead.....	Eastern.....	6.16	421	16
138	Colo.	38004	38003	Denver, Colorado Junction.	Colorado Central.....	129.62	459	30
139	Pa.	8020	8020	Elmira, Blossburg.....	Tioga.....	45.5	407	20
140	Mass.	628	3024	Ayer, Greenville.....	Fitchburg.....	23.50	406	18
141	Colo.	38001	38001	Pueblo, Canon City...	Denver and Rio Grande.....	45	449	20
142	Kans.	33003	33004	Lawrence, Coffeerville.	Leavenworth, Lawrence and Galveston.	140.8	748	25
143	Mass.	657	3058	Winchendon, Peterborough.	Boston, Barre and Gardner....	16.37	261	22
144	Pa.	8105	8105	Emilonton, Clarion....	Emilonton and Shippensburg..	30.12	401	12
145	Ark.	29005	29033	Argenta, Fort Smith..	Little Rock and Fort Smith...	169.29	732	16½
147	Nev.	45002	45002	Palisades, Eureka.....	Eureka and Palisades.....	91.27	425	22½
148	N. H.	259	1013	Dover, Alton Bay.....	Boston and Maine.....	28.42	236	30

States and Territories in which the contract-term expired June 30, 1878, &c.—Continued.

Size, &c., of mail-car or apartment.	Trips per week.	Pay per mile per annum.	Former pay per mile per annum.	Amount of annual pay.	Former amount of annual pay.	Date of readjustment or adjustment.	Remarks.	Order.
<i>Feet and inches.</i>		<i>Dolla.</i>	<i>Dolla.</i>	<i>Dolla.</i>	<i>Dolla.</i>			
13.6 by 5.10, f. f., a. l.	6	70 20	72 00	4,068 79	4,173 12	July 1, 1877	In April, 1877.....	117
14 by 7.3, f. f., a. l.	13	70 11	72 90	3,091 14	3,248 42	July 1, 1878	0.47 m. decrease.....	118
16 by 9.6, f. f., a. l.	6	68 40	72 00	4,220 96	4,326 56	July 1, 1878	0.23 m. increase.....	119
No apt.; no r. a....	7	68 00				May 1, 1876	Rates reduced 10 per cent. from July 1, 1876. New. In April 1878.	120
14.6 by—, f. f., a. l.	6	67 55	90 00	6,788 77	9,000 00	July 1, 1878	0.50 increase.....	121
14 by 7.3, f. f., a. l.	7	67 54	93 60	7,780 60	11,110 32	July 1, 1878	3.50 decrease.....	122
13 by 7. f. f. c., a. l.	15*	67 50	100 00	2,156 62	3,138 00	July 1, 1877	0.57 m. increase In April, 1877.	123
13.6 by 6.7, f. f., a. l.	7	66 60				Dec. 16, 1877	Adj't on 30.73 m. extension.	124
No apt.; no r. a....	18	66 60	65 00	1,770 22	1,755 00	July 1, 1877	0.42 m. decrease. In April, 1877.	125
8.6 by 6, f. f., a. l....	12	65 70	54 00	3,942 00	3,240 00	July 1, 1877	60 days: 30 days from Apr. 16, and 30 from July 16, 1877; 19 trips in summer.	126
12.6 by 7, f. f., a. l.	18	65 70	76 50	1,123 47	1,300 50	July 1, 1877	0.10 m. increase. In April, 1877.	127
10 by 8.10, f. f., a. l.	12	64 98	45 00	1,949 40	1,350 00	July 1, 1878	Main route; branch \$42.75 (276).	128
11.9 by 7.6 (ave.), f. f., a. l.	6	64 13	41 76	14,525 44	9,487 87	July 1, 1878	0.70 m. decrease.....	129
11 by 8.9, f. f., a. l.	7	64 13	81 00	2,247 75	2,673 00	July 1, 1878	2.05 m. increase. Late branch of 33001.	130
10.5 by 6.5, f. f., a. l.	6	63 90	50 00	2,210 94	1,730 00	July 1, 1877	In April, 1877.....	131
8 by 6.6, f. f., r. a.; 1 1/2 l. to Pemberton Junc., 30 m.; 1 l. residue.	15 1/2*	63 90	67 50	3,306 82	2,677 50	July 1, 1877	Formerly 27.50 m., at \$36. 0.75 m. decrease. In April, 1877.	132
13.6 by 6.7, f. f., a. l.	7	63 27	54 00	2,025 59	5,702 40	July 1, 1878	Formerly 30.73 m., at \$66.60.	133
10.5 by 6.5, f. f., a. l.	6	63 00	57 50	2,535 75	2,314 37	July 1, 1877	In April, 1877.....	134
17 by 7.6, f. f., a. l....	12	63 00				Sept. 1, 1877	1.40 m. from Jan. 1, 1878. In May, 1878. New.	135
In b. c.; no r. a....	7	61 56	54 00	1,760 61	1,618 92	July 1, 1878	Pay on extension. Anaheim to Santa Anna, 6.9 m. from Feb. 1, 1878, at \$64.80 per mile.	136
In b. c.....	6	61 20	45 00	376 99	272 25	July 1, 1877	0.11 m. increase. In April, 1877.	137
11 by 7.6, f. f., a. l....	8 1/2*	60 71	54 00	7,869 23	7,720 20	July 1, 1878	Pay on extension. Longmont to Colo. Junc., 72.80 m. from Dec. 1, 1877, at \$63.90. Main route; branches \$55.56 (153), \$45.32 (196).	138
14 by 3.7, f. f., a. l....	12	60 30	53 10	2,743 65	2,416 09	Dec. 1, 1877	Main route; branches \$45. In Dec. 1877.	139
6.6 by 6, f. f., a. l....	12	60 30	56 25	1,417 05	1,293 75	July 1, 1877	0.50 m. increase. In April, 1877.	140
12.4 by 6.5, f. f., a. l.	7	59 85	45 00	2,693 25	2,025 00	July 1, 1878	Branch; main route \$7.21 (83).	141
18 by 8.9, f. f., a. l....	6	59 51	63 36	8,379 00	9,054 14	July 1, 1878	2.1 m. decrease.....	142
10 by 6.6, f. f., d. l.; extra car, 8 by 3.4.	12	59 50	64 80	974 01	1,060 77	July 1, 1877	In April, 1877.....	143
In b. c.; no r. a....	9 1/2*	59 40	45 90	1,195 12	923 50	Dec. 1, 1877	10 m. extension, fixed from Jan. 15, 1878. In April, 1878.	144
12 by 7.6, f. f., a. l....	6	58 83	61 20	9,950 33	10,077 69	July 1, 1878	Formerly 43.65 m., at \$54.72.	145
No apt.; no r. a....	7	58 14	61 20	5,306 43	5,585 72	July 1, 1878		147
9.3 by 6, f. f., d. l....	13*	57 70	50 00	1,639 83	1,400 00	July 1, 1877	0.42 m. increase. In April, 1877.	148

F.—Table showing the readjustment of the rates of pay per mile on railroad routes in

Order.	State.	Number of route.	New number of route.	Termini.	Corporate title of company carrying the mail.	Length of route.	Average weight of mails whole distance per day.	Miles per hour.
						Miles.	Pounds.	
149	N. J. . .	7025	7025	Waterloo, Franklin Furnace.	Sussex.....	24.76	224	12
150	Kans. . .	33018	33021	Waterville, Washington.	Waterville and Washington ..	20.50	355	21
151	Cal. . .	46024	46023	Galt, Ione.....	Amador Branch.....	27.84	350	14
152	Kans. . .	33019	33022	Greenleaf, Concordia ..	Republican Valley.....	41.97	348	21
153	Colo. . .	38004	38003	Golden Junction, Georgetown.	Colorado Central.....	37.72	390	12
154	Ark. . .	29005	29005	Argenta, Fort Smith..	Little Rock and Fort Smith...	169.29	533	13
155	Cal. . .	46005	46005	Sacramento, Folsom ..	Sacramento Valley.....	23.2	373	20
156	Kans. . .	33006	33009	Junction City, Parsons	Missouri, Kansas and Texas ..	157.44	568	19
157	Wis. . .	25018	25018	Manitowoc, New London.	Milwaukee, Lake Shore and Western.	65.56	325	20
158	Wis. . .	25027	25027	Stevens Point, Portage	Wisconsin Central.....	73.23	257	21
159	Cal. . .	46027	46026	San Francisco, Alameda.	Central Pacific.....	13.54	250	16
160	Ark. . .	29006	29005	Malvern, Hot Springs.	Hot Springs.....	25.11	359	16
161	Kans. . .	33015	33019	Ottawa, Burlington...	Kansas City, Burlington and Santa Fé.	47.05	343	12
162	Mass. . .	3044	3044	South Braintree Junction, Fall River.	Old Colony.....	34.36	307	25
163	Ohio. . .	21054	21054	Dayton, Musselman's	Dayton and Southeastern.....	70.09	303	18
164	Pa.	8088	8086	Pollock, Butler	Parker and Karn's City.....	27	300	12
165	Pa.	8104	8104	Southwest Junction, Uniontown.	Pennsylvania (operating Southwestern).	37.3	298	23
166	Cal. . .	46016	46016	San Francisco, Duncan's Mills.	North Pacific Coast.....	80.47	340	16
167	Cal. . .	46008	46008	Napa Junction, Calistoga.	California Pacific.....	34.60	328	21
168	N. Y. . .	6054	6054	Chatham Village, Bennington.	Harlem Extension Railroad, South Coal Transportation Company.	57.80	290	20
169	N. Y. . .	1250	6059	Fredonia, Dunkirk ...	Fredonia and Dunkirk.....	3.5	283	6
170	Ill.	23057	23057	Rochelle, Rockford ...	Chicago and Iowa (late Chicago, Rockford and Northern).	27.64	143	22

ADJUSTMENT OF PAY OF RAILROADS.

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States and Territories in which the contract-term expired June 30, 1878, &c.—Continued.

Size, &c., of mail-car or apartment.	Trips per week.	Pay per mile per annum.	Former pay per mile per annum.	Amount of annual pay.	Former amount of annual pay.	Date of readjustment or adjustment.	Remarks.	Order.
<i>Feet and inches.</i> 6.3 by 3.2, f. f.; 3 1/2 to Newton, 11.76 m.; 21. residue, 13 m.	13 1/2*	Dolls. 56 80	Dolls. 45 00	Dolls. 1,276 36	Dolls. 1,214 20	July 1, 1877	13 m., at \$46.80. Main route; branch, \$45 (—). Formerly \$100 for side service. In April, 1877.	149
14.6 by —, f. f., s. l., 72 m.; no r. a. residue.	6	56 70				Feb. 1, 1877	New	150
In b. c.; no r. a.	7	55 80				Feb. 1, 1877	New	151
14.6 by —, f. f., s. l.	6	55 80				Feb. 1, 1878	New	152
7 by 5, s. l.	7	55 58	45 00	2,096 47	1,879 65	July 1, 1878	Branch; main route \$60.71 (138). Pay on extension, Idaho Springs to Georgetown, 13.5 m., from Oct. 1, 1877, at \$58.50 per mile.	153
12.4 by 7.5, f. f., s. l.	6	54 72				Mar. 21, 1877	Extension from Ozark to Van Buren, 34.11 m., Jan., 1, 1877; Van Buren to Fort Smith, 9.54 m., from March 21, 1877. In October, 1877.	154
No apt.; no r. a.	12	54 72	61 20	1,269 50	1,419 84	July 1, 1878		155
13.9 by 7, f. f., s. l.	6	54 04	41 76	8,508 05	6,535 44	July 1, 1878	0.94 m. increase	156
14 by 7.10, f. f., s. l.	6	54 00				Jan. 16, 1877	New; 21.06 m. extension. Residue of route \$45 per m. In October, 1877.	157
6.10 by 7.7, f. f., s. l.	6	54 00				Mar. 1, 1876	New; 43.63 m. from Dec. 1, 1876. In October, 1877.	158
8.10 by 7, f. f.; carriers (7).	26	54 00				Jan. 1, 1875	New	159
6.10 by 2.1; no r. a.	13	53 87	61 00	1,352 67	1,531 71	July 1, 1878		160
18.6 by 9, 11 by 9, f. f., s. l.	6	53 01	36 00	2,404 12	2,284 63	July 1, 1878	29.84 m. fixed from May 1, 1878, at \$55.80 per m.; 0.17 m. decrease. In July, 1878.	161
In b. c.; no r. a.	18	52 20	54 90	1,793 50	1,886 36	July 1, 1877	In December, 1877.	162
9.6 by 5.9 (ar.); f. f., s. l.	6	52 20	45 00	3,658 60	3,285 59	Jan. 21, 1878	18.27 m. from August 10, 1877. In March, 1878, 20.67 m. from January 21, 1878.	163
8.6 by 5.6, f. f., d. l. to Barnhardt's Mills, 13 m.; s. l. residue 14 m.	8 1/2*	52 20	54 00	1,409 40	1,427 40	July 1, 1877	Pay on 17 m. extension from March 1, 1877. In Nov., 1877.	164
28.7 by 8.3, f. f., s. l.	6	52 20	40 50	1,947 06	1,513 89	July 1, 1877	0.08 m. decrease. In October, 1877.	165
11 by 6, f. f., s. l.	6	52 16	45 00	4,197 31	3,865 38	July 1, 1878	Main route; branches \$45 (239), \$42.75 (273), 24.67 m. extension. Tomaleto to Duncan's Mills from August 16, 1877, at \$54.90.	166
10 by 8.10, f. f., s. l.	12	51 30	45 00	1,774 98	1,575 00	July 1, 1878	1.40 m. decrease	167
12.4 by 6.1, f. f., s. l.	6 1/2*	51 30				Nov. 1, 1877	New. In July, 1878.	168
3.6 by 2; in charge of conductor.	27 1/2*	50 40	142 85	176 40	499 97	July 1, 1877	In April, 1877	169
In b. c.; no r. a.	6	50 00				Dec. 15, 1875	New. From July 1, 1876, rates reduced 10 per cent. In November, 1877.	170

F.—Table showing the readjustment of the rates of pay per mile on railroad routes in

Order.	State.	Number of route.		Termini.	Corporate title of company carrying the mail.	Length of route.		Average weight of mails whole distance per day.	Miles per hour.
		Old.	New.			Miles.	Pounds.		
170a	Vt.	403	2002	Montpelier, Barre.....	Central Vermont	6.76	145	20	
171	Wis.	25028	25028	Hudson, Clayton.....	North Wisconsin	44	102	12	
172	Cal.	46020	46019	Colfax, Nevada City...	Nevada County Narrow Gauge.	22.81	305	13	
173	Vt.	409	2007	Saint Albans, Rich- ford.	Central Vermont	28.47	267	18	
174	Mass.	{ 618 } { 651 }	3003	Salem, Rockport.....	Eastern	20.60	265	21	
175	Nebr.	34005	34005	Brownville, York	Nebraska	132.64	292	12	
176	R. I.	830	4007	Kingston Depot, Nar- ragansett Pier.	Narragansett Pier	9.14	259	20	
177	Mass.	619	3004	Salem, Marblehead ...	Eastern	4.49	258	16	
178	Wis.	24017	25017	Menasha, Ashland....	Wisconsin Central.....	251.02	256	16	
179	Ohio.	21052	21052	Little Miami Junction. Scott.	Cincinnati and Eastern	48.19	254	15	
180	N. Y.	1811	6021	Rochester, Charlotte..	New York Central and Hud- son River.	9	251	24	
181	Cal.	46023	46022	Woodland, Williams..	California Northern.....	39.72	248	14	
182	Mich.	24041	24041	Marquette, L'Anse ...	Marquette, Houghton and On- tonagon.	63.46	410	20	
183	Nebr.	34008	34008	Valley, David City....	Omaha and Republican Valley	61.29	278	12	
184	Cal.	46009	46009	Marysville, Oroville ..	California Northern	30	274	22	
185	Vt.	2014	2014	Burlington, Cam- bridge Junction.	Burlington and Lamoille.....	34.97	245	22	
186	Pa.	8004	8004	Lansdale, Doyle's- town.	North Pennsylvania	10.65	241	27	
187	Pa.	8037	8036	Altoona, Martins- burgh.	Pennsylvania (Lessees)	22.52	230	14	
188	La.	30008	30008	Vicksburg, Monroe....	Vicksburg, Shreveport and Texas.	76.16	423	13	
189	Nebr.	34003	34003	Omaha, Tekamah	Omaha and Northwestern.....	48.35	259	15½	
190	Nebr.	34006	34006	Crete, Beatrice	Burlington and Missouri River (in Nebraska).	30.6	253	12	
191	Cal.	46023	46022	Woodland, Williams..	California Northern.....	39.72	248	14	
192	Me.	14	16	Houlton, New Bruns- wick Line.	New Brunswick and Canada ..	3.93	223	20	
193	N. Y.	1270	6078	Port Jervis, Monti- cello.	Monticello and Port Jervis....	24	219	20	
194	Pa.	8108	8105	Emlenton, Knox	Emlenton and Shippensburg ..	15.2	213	12	

States and Territories in which the contract-term expired June 30, 1878, &c.—Continued.

Size, &c., of mail-car or apartment.	Trips per week.	Pay per mile per annum.	Former pay per mile per annum.	Amount of annual pay.	Former amount of annual pay.	Date of readjustment or adjustment.	Remarks.	Order.
<i>Feet and inches.</i>		<i>Dolls.</i>	<i>Dolls.</i>	<i>Dolls.</i>	<i>Dolls.</i>			
In b. c.; no r. a.	12	50 00				Nov. 16, 1875	Rate reduced 10 per cent. from July 1, 1876. Branch; main route \$198.50 (28). In August, 1877.	170a
8 by 7, f. f., s. l.	6	50 00				Apr. 1, 1876	New; rate reduced 10 per cent. from July 1, 1876. In Oct., 1877.	171
In b. c.; no r. a.	14	49 59	49 50	1,131 14	1,129 09	July 1, 1878		172
10.6 by 6, f. f., s. l.	6	49 50	67 50	1,409 26	1,934 55	July 1, 1877	0.19 m. decrease. In April, 1877.	173
In b. c.	16½	49 50	67 00	1,024 15	1,512 00	July 1, 1877	Formerly 6.50 m. at \$50, and \$125 form. m. 1.81 m. decrease. In April, 1877.	174
12 by 6.7, 8.9 by 6.7, f. f., s. l.	6	48 74	51 30	6,464 87	6,804 43	July 1, 1878	Pay on 26.27 m. extension fixed from September 1, 1877, at \$51.30. 0.252 m. increase.	175
In b. c.; no r. a.	15	48 60				Mar. 1, 1877	New. In Aug., 1877.	176
In b. c.	12	48 60	50 00	218 21	200 00	July 1, 1877	0.49 m. increase. In April, 1877.	177
13 by 7, f. f., s. l.	6	48 60	45 00	12,199 57	11,608 81	Oct. 1, 1877	86.92 m. from June 1, 1877. In Oct., 1877.	178
13.7 by 5.1½, f. f., s. l.	12	48 60				July 1, 1877	15.71 m. from Nov. 16, 1876; 8.28 m. from Mar. 16, 1877; 7.66 m. from May 14, 1877; 6.34 m. from June 1, 1877; 10.20 m. from July 1, 1877. New.	179
In b. c.; no r. a.	18	48 60	46 80	437 40	421 20	July 1, 1877	In April, 1877	180
8.9½ by 7.3½, f. f., s. l.	7	48 60				Dec. 1, 1876	New	181
12 by 7.2, f. f., s. l.	7½	48 24				Apr. 1, 1878	New; main route; branch \$38 (295). In May, 1878.	182
8 6 by 5, f. f., s. l.	6	47 88	50 40	2,934 56	3,089 01	July 1, 1878	Pay on 19 m. from Feb., 12, 1877; pay on 19 m. extension from July 16, 1877; pay on 23.29 m. extension from Dec. 7, 1877.	183
In charge of conductor.	7	47 78	45 00	1,436 40	13 50	July 1, 1878		184
8.7 by 6.10½, f. f., s. l.	9	47 70				Aug. 13, 1877	New; in Feb., 1878.	185
No apt.; no r. a.	72	47 70	45 00	508 00	441 00	July 1, 1877	Branch; main route \$147.60 (43). 0.85 m. increase. In April, 1877.	186
In b. c.; no r. a.	21	46 80	45 00	1,053 93	1,003 50	July 1, 1877	Main route; branches \$40.50. 0.22 m. increase.	187
10.1 by 7.3, 11 by 7, f. f., s. l.	7	46 52	36 72	3,542 96	3,172 36	July 1, 1878	Formerly \$400 per annum for m. m. and ferrisage. 0.66 m. increase.	188
9.6 by 7.6, f. f., s. l.	6	46 17	50 00	2,232 31	2,352 00	July 1, 1878	40.2 m. under contract. Formerly 7.6 m. at \$45. 0.55 m. increase.	189
6 by 5, f. f., s. l.	6	46 17	45 00	1,412 80	1,429 20	July 1, 1878	1.16 m. decrease	190
8.9½ by 7.3½, f. f., s. l.	7	46 17	48 60	1,833 87	1,930 39	July 1, 1878		191
In b. c.; no r. a.	6	45 90	45 00	180 38	171 90	July 1, 1877	0.11 m. increase. In April, 1877.	192
12 by 8; mail and express combined.	6	45 90	50 00	1,101 60	1,200 00	July 1, 1877	In April, 1877	193
8.6 by 4.9, f.; no r. a.	12	45 90				Jan. 22, 1877	New; in April, 1877	194

F.—Table showing the readjustment of the rates of pay per mile on railroad routes in

Order.	State.	Number of route.	New number of route.	Termini.	Corporate title of company carrying the mail.	Length of route.		Average weight of mails whole distance per day.	Miles per hour.
						Miles.	Pounds.		
195	Kans.	33012	33015	Junction City, Clifton.	Junction City and Fort Kearney.	50.60	247		15
196	Colo.	38004	38003	Fork's Creek, Black Hawk.	Colorado Central.	7.90	245		12
197	Cal.	46007	46007	Davisville, Grafton.	California Pacific.	18.34	236		30
198	N. Y.	1259	6067	North Hoosac Junction, State line.	Troy and Boston.	5.5	207		25
199	Ga.	15025	15025	Athens, Belton.	Northwestern of Georgia.	40.53	204		17
200	N. Y.	1215	6015	Buffalo, Lockport.	New York Central and Hudson River.	22	196		21
201	Va.	11020	11020	Fredericksburg, Orange Court-House.	Royal Land Company.	38.25	196		18
202	N. Y.	1203	6003	Buffalo, Suspension Bridge.	Erie.	25.94	187		25
203	Tex.	31013	31013	Houston, Orange.	Texas and New Orleans.	106.84	183		12
204	Mass.	620	3005	Salem, Lawrence.	Eastern.	19.01	182		22
205	Mass.	623	3017	Lowell, Lawrence.	Boston and Lowell and Nashua and Lowell.	13.08	172		25
206	Mass.	654	3007	East Salisbury, Amesbury.	Eastern.	3.90	167		20
207	Pa.	8068	8067	Lewisburg, Laurelton.	Pennsylvania (lessees Lewisburg Centre and Spruce Creek).	42.38	165		11½
208	Mass.	616	3036	Boston, Dedham.	Boston and Providence.	9.61	162		28
209	Mass.	652	3014	Wakefield, Newburyport.	Boston and Maine.	31.36	161		30
210	Tenn.	19016	19016	Tullahoma, McMinnville.	Nashville, Chattanooga and Saint Louis.	35	160		12
211	Ohio.	21056	21056	Saint Clairsville, Quincy Junction.	Bellaire and Saint Clairsville Narrow Gauge.	7.05	159		20
212	Pa.	8067	8567	Lewisburg, Spring Mills.	Pennsylvania.	42.38	144		13½
213	N. Y.	1214	6014	Canandaigua, Tonawanda.	New York Central and Hudson River.	86	139		17
214	Cal.	46015	46015	Elmira, Madison.	Vaca Valley.	29	134		20
215	S. C.	14011	14011	Spartanburg, Lynn.	Spartanburg and Ashville.	28.5	131		15
216	Kan.	33017	33017	Florence, El Dorado.	Atchison, Topeka and Santa Fé, (lessees Florence, El Dorado and Walnut Valley).	31.05	129		15
217	Mass.	624	3018	Winchester, Woburn.	Boston and Lowell and Nashua and Lowell.	2.18	128		25
218	Pa.	8108	8108	Lewiston Junction, Selin's Grove Junction.	Pennsylvania (lessees Sunbury and Lewiston).	45	126		17
219	Mich.	24039	24039	Flint, Lansing.	Chicago and Northeastern.	50.18	124		27
220	Tex.	31014	31014	Jefferson, Pittsburg.	East Line and Red River.	49.20	121		15
220a	Mass.	602	3011	Rollingsford, Great Falls.	Boston and Maine.	2.50	119		30
221	Mass.	610	3012	Boston, Medford.	Boston and Maine.	5.31	121		30
222	N. Y.	1286	6101	Sidney Plains, New Berlin.	New York and Oswego Midland.	24.84	117		12

States and Territories in which the contract-term expired June 30, 1878, &c.—Continued.

Size, &c., of mail-car or apartment.	Trips per week.	Pay per mile per annum.	Former pay per mile per annum.	Amount of annual pay.	Former amount of annual pay.	Date of readjustment or adjustment.	Remarks.	Order.
<i>Feet and inches.</i> 13.3 by 6.6, f. f., a. l.	6	Dolla. 45 32	Dolla. 54 00	Dolla. 2,293 19	Dolla. 2,663 42	July 1, 1878	Pay on extension. Clay Center to Clifton, 17.12 m., from February 15, 1878, at \$47.70. 0.72 m. decrease.	185
In b. c.; no r. a. . . .	7	45 32	45 00	358 02	355 50	July 1, 1878	Branch; main route \$60.71 (138).	186
8.9 by 7.5, f. f., a. l. to Woodland, 9.20 miles.	9*	45 32	45 00	831 16	818 00	July 1, 1878	0.14 m. increase	197
18.6 by 10.6 (average), a. l.	18	45 00	112 50	247 50	618 75	July 1, 1877	Branch; main route \$213.35 (28). In Apr., 1877.	188
In b. c.; no r. a. . . .	12	45 00	.....	.....	.....	Feb. 1, 1877	In Oct., 1877. New . . .	190
In b. c.; no r. a. . . .	12	45 00	67 50	990 00	1,485 00	July 1, 1877	In Apr., 1877	200
14 by 7.6, f. f., a. l.	6	45 00	.....	.....	.....	Apr. 9, 1877	In Sept., 1877. New . . .	201
No apt.; no r. a. . . .	9*	45 00	58 50	1,167 30	1,527 49	July 1, 1877	In Sept., 1877	202
7 by 7, f. f., a. l. . . .	7	45 00	27 00	4,807 80	2,884 68	July 1, 1877	In Nov., 1877	203
In b. c.	17½*	45 00	40 00	855 45	800 00	July 1, 1877	0.99 m. decrease. In Apr., 1877.	204
No apt.; no r. a. . . .	16½*	45 00	50 00	588 60	700 00	July 1, 1877	Formerly \$350 per annum for m. m. 0.92 m. decrease. In Apr., 1877.	205
In b. c.	21*	45 00	50 00	175 50	250 00	July 1, 1877	Formerly \$50 per annum for m. m. 0.10 m. decrease. In Apr., 1877.	206
8.6½ by 6.9½, f. f., a. l.	6	45 00	54 00	1,907 10	2,300 67	July 1, 1877	Pay on 21.65 m. extension from Dec. 1, 1877; formerly \$107 per annum for m. m. In Apr., 1877.	207
No apt.; no r. a. . . .	18	45 00	50 00	432 45	550 00	July 1, 1877	1.39 m. decrease. In Apr., 1877.	208
In b. c.; no r. a. . . .	12	45 00	50 00	1,411 20	1,525 00	July 1, 1877	0.86 m. increase. In Apr., 1877.	209
b. c.; no r. a.	6	45 00	.....	.....	.....	Feb. 16, 1877	New; in Oct., 1877 . . .	210
In b. c.; no r. a. . . .	24	45 00	.....	.....	.....	Oct. 1, 1877	New; in Mar., 1878 . . .	211
8.6 by 6.8, f. f., a. l.	8½*	45 00	.....	.....	.....	Dec. 1, 1877	New; in Feb., 1878 . . .	212
9.2 by 6.1, 10 by 8.6, f. f., a. l.	6	45 00	67 50	3,870 00	5,805 00	July 1, 1877	In Apr., 1877	213
In b. c.; no r. a. . . .	12	45 00	.....	.....	.....	May 1, 1877	New; in Oct., 1877 . . .	214
7 by 5, f. f., a. l. . . .	6	45 00	.....	.....	.....	July 1, 1877	do	215
In b. c.; no r. a. . . .	6	45 00	.....	.....	.....	Sept. 1, 1877	do	216
No apt.; no r. a. . . .	18	45 00	50 00	98 10	150 00	July 1, 1877	0.82 m. decrease. In Apr., 1877.	217
6.1 by 5.10, f. f., a. l.	6	45 00	.....	.....	.....	June 1, 1877	New; in Oct., 1877 . . .	218
12 by 7 (average), f. f., a. l.	6	45 00	.....	.....	.....	Feb. 20, 1877	New; in Jan., 1878 . . .	219
9.6 by 6.6, f. f., a. l.	6	45 00	.....	.....	.....	Jan. 1, 1878	32.57 m. from July 16, 1877. New.	220
In b. c.; no r. a. . . .	18	45 00	50 00	112 50	150 00	July 1, 1877	Branch; main route \$193.80 (31). 0.50 m. decrease.	220a
No r. a.	18	45 00	50 00	238 95	335 00	July 1, 1877	Formerly \$60 per annum for m. m. service. 0.19 m. decrease. In Apr., 1877.	221
In b. c.	6	45 00	.....	.....	.....	May 1, 1877	New; in Nov., 1877 . . .	222

F.—Table showing the readjustment of the rates of pay per mile on railroad routes in

Order.	State.	Number of route.	New number of route.	Termini.	Corporate title of company carrying the mail.	Length of route.	Average weight of mails whole distance per day.	Miles per hour.
						Miles.	Pounds.	
223	Kans.	33016	33016	Girard, Joplin	Joplin	34.56	115	20
224	Ill.	23059	23059	Rock Island, Cable.....	Rock Island and Mercer County	21.90	112	13
225	Mass.	615	3002	Boston, West Lynn Depot.	Eastern	11.60	111	17
226	N. Y.	1285	6090	Sodus Point, Gorham Station.	Ontario Southern (late Sodus Point and Southern).	34	103	17
227	Ky.	20022	20022	Harrodsburg, Harrodsburg Junction.	South Western	6.43	103	14
228	Wis.	25030	25030	Onalaska, La Crosse...	Chicago and Northwestern...	6.5	102	15
229	Mass.	625	3019	Somerville Station, Concord.	Boston and Lowell and Nashua and Lowell.	16.61	101	25
230	Ky.	20020	20020	Flemingsburg, Johnson's Junction.	Covington, Flemingsburg and Pound Gap.	5.42	101	15
231	Utah	41005	41005	Salt Lake City, Stockton.	Utah Western	40.5	98	12
232	Nebr.	34007	34007	Covington, Ponca.....	Covington, Columbus and Black Hills.	26.51	91	14
233	N. H.	351	1015	Wolfboro' Junction, Wolfboro'.	Eastern	12.11	87	25
234	Mo.	28029	28029	Hannibal, Bowling Green.	Saint Louis, Hannibal and Keokuk.	32.95	79	15
235	Pa.	8082	8080	Mechanicsburg, Dillsburg.	Cumberland Valley	8.85	77	12
236	Vt.	525	2008	Leicester Junction, Ticonderoga Station.	Central Vermont.....	15.60	76	15
237	Tenn.	19015	19015	Victoria, Bridgeport..	Nashville and Chattanooga...	19.875	71	10
238	N. J.	7032	7032	Whiting, Long Beach.	Tuckerton	38.06	71	25
239	Cal.	46016	46016	San Anselmo, San Quentin.	North Pacific Coast.....	5.50	70	16
240	Ind.	22038	22038	Monon, Rensselaer....	Indianapolis, Delphi and Chicago.	16.42	67	15
241	Tex.	31015	31015	Tyler, Big Sandy	Tyler Tap	22.05	66	12
242	Ill.	23061	23061	El Dorado, Cave	Belleville and El Dorado	22.18	61	11
243	Ohio	21057	21057	Washington Court-House, Waynesville.	Columbus, Washington and Cincinnati.	38.06	61	15
244	Mo.	28002	28002	Mineral Point, Potosi.	Saint Louis, Iron Mountain and Southern.	4	58	20
245	Me.	250a	250a	Lewiston, South Auburn.	Grand Trunk of Canada	5.41	55	24
246	Iowa.	27035	27035	Burlington, Winfield.	Burlington and Northwestern.	18.82	50	11
247	N. J.	7012	7012	Kinkora, Lewistown ..	Pennsylvania	10.81	48	30
248	Wis.	25031	25031	New Lisbon, Necedah.	Chicago, Milwaukee and Saint Paul.	12.76	36	16
249	N. H.	359	1007	Wing Road, Fabyan House.	Boston, Concord and Montreal.	13.50	34	20
250	N. H.	360	1016	Portsmouth, Dover ..	Eastern	11.60	28	26
251	Ohio	21055	21055	Moxahala, New Lexington.	Ohio Central	7.6	24	15
252	Pa.	8020	8111	Blossburg, Fall Brook	Fall Brook Coal Company	6.50	22	7
253	Cal.	46026	46026	Santa Cruz, Felton....	Santa Cruz and Felton	8.37	22	10
254	Cal.	46004	46004	Folsom, Shingle Springs.	Placerville and Sacramento Valley.	26.5	229	12
255	Tex.	31013	31012	Houston, Orange.....	Texas and New Orleans.....	106.24	210	12
256	Oreg.	44002	44002	Portland, Saint Joseph.	Oregon Central	48.61	207	12
257	Ark.	29002	29002	Helena, Clarendon ..	Arkansas Central	48.20	204	12
258	Cal.	46022	46021	Santa Cruz, Watsonville.	Santa Cruz	23.39	198	18
259	Cal.	46019	46318	Visalia, Goshen	Visalia	8.37	192	18

States and Territories in which the contract-term expired June 30, 1878, &c.—Continued.

Size, &c., of mail-car or apartment.	Trips per week.	Pay per mile per annum.	Former pay per mile per annum.	Amount of annual pay.	Former amount of annual pay.	Date of readjustment or adjustment.	Remarks.	Order.
<i>Feet and inches.</i>		<i>Dolls.</i>	<i>Dolls.</i>	<i>Dolls.</i>	<i>Dolls.</i>			
12.10 by 6 (average), f. f., s. l.	6	45 00				Aug. 13, 1877	New	223
In b. c.; no r. a.	6	45 00				Mar. 21, 1877	New; from July 1, 1878. 26.12 m. paid for, in Mar., 1878.	224
In b. c.	12	45 00	50 00	522 00	500 00	July 1, 1877	1.60 m. increase. In Apr., 1877.	225
7.5 by 7, f. f., s. l.	6	45 00	50 00	1,530 00	1,700 00	July 1, 1877	In Apr., 1877.	226
10 by 10 f.; no r. a.	6	45 00				Dec. 1, 1877	New; in July, 1878.	227
In b. c.; no r. a.	12	45 00				July 16, 1877	New; in May, 1878.	228
No apt.; no r. a.	12	45 00	50 00	747 45	798 00	July 1, 1877	0.65 m. increase. In Apr., 1877.	229
In express-car; no r. a.	12	45 00				July 1, 1877	New; in Mar., 1878.	230
In b. c.; no r. a.	6	45 00				Jan. 1, 1878	New	231
7.10 by 5.10, f. f.; no r. a.	6	45 00				Jan. 16, 1877	New; in Oct., 1877.	232
In b. c.	6	45 00	30 00	544 95	363 30	July 1, 1877	Additional service in summer. In Apr., 1877.	233
12 by 9.6, f. f., no r. a.	6	45 00				July 1, 1875	New. Rate reduced 10 per cent. from July 1, 1876. In Dec., 1877.	234
Locked box in passenger-car.	6	45 00	36 00	398 25	318 60	July 1, 1877	In Apr., 1877.	235
14 by 7, f. f.; no r. a.	6	45 00	90 00	702 00	1,305 00	July 1, 1877	1.10 m. increase. In Apr., 1877.	236
In b. c.; no r. a.	6	45 00	25 35	894 37	503 83	Jan. 1, 1878	In July, 1878.	237
8.1 by 7.1, f. f., s. l.	12	45 00	36 00	1,712 70	1,490 76	July 1, 1877	13.4 m. from Aug. 5, 1876. In Apr., 1877.	238
11 by 6, f. f., s. l.	12	45 00				Aug. 1, 1876	Branch; main route \$52.16 (166). New.	239
In b. c.	6	45 00				Mar. 1, 1878	New. In May, 1878.	240
In b. c.; no r. a.	6	45 00				Nov. 1, 1877	New. 0.50 m. increase.	241
B. c.; no r. a.	6	45 00				Mar. 11, 1878	New. In Aug., 1878.	242
13.2 by 6, f. f.; no r. a.	6	45 00				Dec. 1, 1877	New. In July, 1878.	243
In b. c.; no r. a.	6	45 00	50 00	180 00	200 00	Oct. 1, 1877	Branch; main route \$220.60 (25). In Oct., 1877.	244
In b. c.; no r. a.	6	45 00				Feb. 1, 1877	New. In May, 1877.	245
In b. c.; no r. a.	6	45 00				Feb. 15, 1877	New. In Nov., 1877.	246
No r. a.	15*	45 00	36 00	486 45	389 16	July 1, 1877	In April, 1877.	247
In b. c.; no r. a.	6	45 00				Jan. 1, 1878	New. In May, 1878.	248
In b. c.; no r. a.	6	45 00	50 00	607 50	742 50	July 1, 1877	Formerly \$50 per annum for m. m. service; 12 trips in summer. 35 m. decrease. In April, 1877.	249
In b. c.	6	45 00	36 00	522 00	419 04	July 1, 1877	0.04 m. decrease. In April, 1877.	250
In locked desk.	6	45 00				July 1, 1877	New. In Nov., 1877.	251
In charge of conductor.	6	45 00				July 1, 1877	New. In April, 1877.	252
In b. c.; no r. a.	6	45 00				Oct. 16, 1877	New	253
No apt.; no r. a.	6	44 46	47 70	1,178 19	1,264 05	July 1, 1878		254
7 by 7, f. f., s. l.	6	42 75	45 00	4,541 76	4,807 80	July 1, 1878	0.60 m. decrease	255
9.6 by 6.6, f. f., s. l.	6	42 75	45 00	2,078 07	2,187 45	July 1, 1878		256
9.4 by 6.5, f. f., s. l.	6	42 75	45 00	2,060 55	2,169 00	July 1, 1878		257
In b. c.; no r. a.	7	42 75	45 90	999 92	1,073 60	July 1, 1878		258
In b. c.; no r. a.	7	42 75	45 00	357 81	376 65	July 1, 1878		259

F.—Table showing the readjustment of the rates of pay per mile on railroad routes in

Order.	State.	Number of route.	New number of route.	Termini.	Corporate title of company carrying the mail.	Length of route.	Average weight of mails whole distance per day.	Miles per hour.
						Miles.	Pounds.	
260	Kans	33010	33013	Leavenworth, Onaga	Kansas Central	84.23	157	14
261	Kans	33017	33017	Florence, El Dorado	Atchison, Topeka and Santa Fe, (lessee Florence, El Dorado and Walnut Valley.)	30.75	155	14
262	La	30002	30002	New Orleans, Donaldsonville.	New Orleans and Texas	64.32	149	19
263	Tex	31006	31006	Minneola, Troupe	International and Great Northern.	44.70	148	9
264	Ill	23058	23058	West Lebanon, Fisher	Havana, Rantoul and Eastern	52.50	135	10
265	Cal	46015	46015	Elmira, Madison	Vaca Valley	29	135	20
266	Cal	46002	46002	Gilroy, Tres Pinos	Southern Pacific	20.2	134	18
267	Tex	31014	31013	Jefferson, Pittsburg	East Line and Red River	49.20	121	15
268	Kans	33016	33020	Girard, Joplin	Joplin	37.3	115	20
269	Colo	38003	38002	Hughes Station, Boulder.	Denver and Boulder Valley	37.75	106	23
270	Nebr	34007	34007	Covington, Ponca	Covington, Columbus and Black Hills.	26.51	100	14
271	Utah	41005	41005	Salt Lake City, Stockton.	Utah Western	40.5	98	12
272	Tex	31006	31006	Phelps, Huntville	International and Great Northern.	9	85	8
273	Cal	46016	46016	San Anselmo, San Quentin.	North Pacific Coast	5.50	70	16
274	Utah	41004	41004	Sandy Station, Bingham Cañon.	Bingham Cañon and Camp Floyd.	22.5	67	15
275	Tex	31015	31014	Tyler, Big Sandy	Tyler Tap	22.05	66	12
276	Cal	46012	46012	Peters, Oakdale	Stockton and Copperopolis	19	62	17
277	Cal	46013	46013	Wilmington, Los Angeles.	Southern Pacific	21.75	60	17
278	Cal	46021	46020	Los Angeles, Santa Monica.	Los Angeles and Independence	16.80	54	18
279	Cal	46026	46025	Santa Cruz, Felton	Santa Cruz and Felton	8.37	22	10
280	N. J.	7040	7040	High Bridge, Port Oram.	Central of New Jersey	25.32	87	23
281	Ky	20014	20014	Willard, Greenup	Eastern Kentucky	34.50	77	20
282	Pa	8087	8085	Mount Union, Broad Top.	East Broad Top Railroad and Coal Company.	32.05	63	15
283	Tenn	19018	19018	Columbia, Lewisburg	Duck River Valley	20.23	61	15
284	Mich	24040	24040	Saint Louis, Cedar Lake	Chicago, Saginaw and Canada	20.07	52	13
285	Iowa	27036	27036	Newton, Monroe	Newton and Monroe	17.90	47	12
286	Iowa	27040	27040	Adams Junction, Waukon.	Waukon and Mississippi	22.98	45	8
287	Iowa	27038	27038	Maple River Junction, Mapleton.	Chicago and Northwestern, (lessee Maple River.)	61.18	44	13
288	Cal	46028	46027	Fulton, Guerneville	San Francisco & North Pacific	16.09	38	30
289	Iowa	27037	27037	Judd, Lehigh	Crooked Creek Railway and Coal Company.	8.5	33	12
290	Pa	8103	8101	Wilkesbarre, Wananatic.	Central, of New Jersey	11.55	27	20
291	Penn	8049	8048	Westchester, intersection Pennsylvania Railroad.	Westchester	9	24	....
292	Penn	8006	8006	Philadelphia, Darby	Philadelphia and Darby	7.56	24	5
293	Cal	46028	46027	Fulton, Guerneville	San Francisco and North Pacific.	16.09	38	30
294	N. J.	7035	7035	Atco, Williamstown	Williamstown	9	37	25
295	Mich	24041	24041	Humboldt, Republic	Marquette, Houghton and Ontonagon.	9.70	22	19
296	Pa	8089	8087	Bellwood, Lloydville	Bell's Gap	8.84	11	10

States and Territories in which the contract-term expired June 30, 1878, &c.—Continued.

Size, &c., of mail-car or apartment.	Trips per week.	Pay per mile per annum.	Former pay per mile per annum.	Amount of annual pay.	Former amount of annual pay.	Date of readjustment or adjustment.	Remarks.	Order.
<i>Feet and inches.</i>		<i>Dolls.</i>	<i>Dolls.</i>	<i>Dolls.</i>	<i>Dolls.</i>			
7.6 by 5, f. f., a. l.	6	42 75	50 00	3,600 83	4,074 20	July 1, 1878	Pay on extension to Onaga, 27.76 m., at \$45 per m., from Dec. 10, 1877; 0.03 m. decrease.	260
13.64 by 9.34, f. f., no r. a.	6	42 75	45 00	1,314 56	6,988 50	July 1, 1878	0.30 m. decrease	261
10 by 7, f. f., a. l.	6	42 75	45 00	2,749 68	2,864 70	July 1, 1878	0.66 m. increase	262
8.6 by 7, f. f., a. l.	6	42 75	50 00	1,910 92	2,201 01	July 1, 1878	Branch; main route \$141.08 (46), .68 m. increase.	263
In b. c.; no r. a.	6	42 75	36 00	2,244 37	1,998 00	July 1, 1878	12 m. ext. from Dec. 1, 1877, at \$45. In April, 1878.	264
In b. c.; no r. a.	6	42 75	45 00	1,239 75	1,305 00	July 1, 1878		265
In b. c.; no r. a.	10*	42 75	45 00	863 55	909 00	July 1, 1878	Branch; main route \$73.19 (109).	266
9.6 by 6.6, f. f., a. l.	6	42 75	45 00	2,103 30	2,214 00	July 1, 1878		267
12.10 by 6 (av.) f. f., a. l.	6	42 75	45 00	1,594 57	1,555 20	July 1, 1878	2.74 m. increase	268
12 by 7, f. f.; no r. a.	7	42 75	67 50	1,186 81	1,873 12	July 1, 1878		269
In b. c.; no r. a.	6	42 75	45 00	1,133 30	1,192 95	July 1, 1878		270
In b. c.; no r. a.	6	42 75	45 00	1,731 37	1,822 50	July 1, 1878		271
No apt.; no r. a.	12	42 75	50 00	384 75	425 00	July 1, 1878	Branch; main route \$141.08 (46); .50 m. increase.	272
11 by 6, f. f., a. l.	12	42 75	45 00	235 12	247 50	July 1, 1878	Branch; main route \$52.16 (166).	273
In b. c.; no r. a.	7	42 75	40 50	961 87	911 25	July 1, 1878		274
In b. c.; no r. a.	6	42 75	45 00	942 83	992 25	July 1, 1878	0.50 m. increase	275
In b. c.; no r. a.	6	42 75	45 00	812 25	855 00	July 1, 1878	Branch; main route \$64.98 (128).	276
In b. c.; no r. a.	7	42 75	36 00	929 81	783 00	July 1, 1878		277
In b. c.; no r. a.	7	42 75	36 00	718 20	604 80	July 1, 1878		278
In b. c.; no r. a.	6	42 75	45 00	357 81	376 65	July 1, 1878		279
In b. c.; no r. a.	6	40 50				Apr. 10, 1877	New. In Dec., 1877	280
10.5 by 4.9, f. f., a. l.	6	40 50	36 00	1,397 25	1,252 00	May 1, 1878	In May, 1878	281
No r. a.	6	40 50	36 00	1,298 02	1,160 28	July 1, 1877	0.18 m. decrease. In April, 1877.	282
In b. c.; no r. a.	6	40 50				Apr. 9, 1877	In May, 1878. New	283
In b. c.; no r. a.	6	40 50				Apr. 1, 1877	New. In Oct., 1877	284
In b. c.; no r. a.	6	40 50				Sept. 9, 1877	New. In May, 1878	285
In b. c.; no r. a.	6	40 50				Feb. 11, 1878	New. In May, 1878	286
12.4 by 7.5, a. l.	6	40 50				Dec. 1, 1877	New. In Jan., 1878.	287
In b. c.; no r. a.	6	40 50				Feb. 15, 1878	New	288
No apt.; no r. a.	6	40 50				Nov. 1, 1877	New. In May, 1878.	289
B. c.; no r. a.	6	40 50				July 1, 1876	New. In April, 1877.	290
In charge of conductor.	6	40 50	30 00	364 50	270 00	July 1, 1877	In April, 1877	291
In pass. c.; no r. a.	9*	40 50	90 00	306 18	450 00	July 1, 1877	2.56 m. increase. In April, 1877.	292
In b. c.; no r. a.	6	38 48	40 50	619 14	651 64	July 1, 1878		293
7 by 6.9 f.; no r. a.	12	36 00	27 00	324 00	243 00	July 1, 1877	In April, 1877	294
In b. c.; no r. a.	6	36 00				Apr. 1, 1878	Branch; main route \$48.24 (182). New. In May, 1878.	295
In locked box	6	36 00	45 00	318 24	396 90	July 1, 1877	0.02 m. increase. In April, 1877.	296

F.—Table showing the readjustment of the rates of pay per mile on railroad routes in

Order.	State.	Number of route.	New number of route.	Termini.	Corporate title of company carrying the mail.	Length of route.	Average weight of mails, whole distance per day.	Miles per hour.
						Miles.	Pounds.	
297	Mass.	621	3013	Georgetown, Haverhill	Boston and Maine	7.45	10	30
298	Ind.	22036	22036	Swits City, Bedford...	Bedford, Springville, Owensburg and Bloomfield.	41.04	63	12
299	Kans.	33014	33018	Fort Scott, Arcadia...	Fort Scott, Southeastern and Memphis.	17.13	39	15
300	La.	30007	30007	Saint Francisville, Woodville.	West Feliciana	28.23	44	9
301	Tex.	31008	31008	Houston, Columbia...	International and Great Northern.	50.75	97	10
302	Ark.	29007	29007	Pine Bluff, Collins...	Little Rock, Mississippi River and Texas.	100.64	61	10
303	Ark.	29007	29004	Pine Bluff, Collins...	Little Rock, Mississippi River and Texas.	100.64	61	10
304	La.	30006	30006	Clinton, Port Hudson.	Clinton and Port Hudson	21	18	7
305	La.	30005	30005	Baton Rouge, Livonia.	Baton Rouge, Gross Tete and Opelousas.	30	14	6

Excess of present over former amount of annual pay by readjustment

States and Territories in which the contract-term expired June 30, 1878, &c.—Continued.

Size, &c., of mail-car or apartment.	Trips per week.	Pay per mile per annum.	Former pay per mile per annum.	Amount of annual pay.	Former amount of annual pay.	Date of readjustment or adjustment.	Remarks.	Order.
<i>Feet and inches.</i>		<i>Dolls.</i>	<i>Dolls.</i>	<i>Dolls.</i>	<i>Dolls.</i>			
No r. a.....	6	36 00	50 00	288 20	325 00	July 1, 1877	0.95 m. increase. In April, 1877.	297
10 by 6.6 f. f., a. l..	3	31 50	.....	.....	.....	July 16, 1877	New; from Aug. 21, 1877, \$45 per m. for 6 trips per week. In July, 1878.	298
In b. c.; no r. a...	6	30 78	31 50	527 26	545 26	July 1, 1878	Pay on 6.3 m. extension from March 1, 1878, at \$32.40 per m.	299
In a box.....	3	29 93	35 00	844 92	964 95	July 1, 1878	0.66 m. increase. 4 trips per week for a few weeks.	300
No apt.; no r. a...	3	27 36	25 00	1,388 52	1,250 00	July 1, 1878	0.75 m. increase	301
$\frac{1}{2}$ of car; f., a. l...	3	27 00	.....	.....	.....	June 11, 1877	New. 50.55 m. from June 11, 1877. 25 m. extension to Arkansas City from Aug. 13, 1877. 25.09 m. extension to Collins from Sept. 21, 1877.	302
$\frac{1}{2}$ of car; f., a. l...	3	25 65	27 00	2,581 41	2,717 28	July 1, 1878	.....	303
No apt.; no r. a...	3	25 65	27 00	538 65	567 00	July 1, 1878	.....	304
In passenger-car...	3	25 65	18 00	769 50	504 00	July 1, 1878	2 m. increase	305
.....				4,278,875 48	3,907,602 19			
.....				371,273 29				

THOS. J. BRADY,
Second Assistant Postmaster-General.

NOTE.—For index to Table F, see p. 169.

Index for Table E.

Title.	Order.	Number of route.	New number of route.	Title.	Order.	Number of route.	New number of route.
Adirondack	110	1804	6095	Central Vermont	65	1279	6054
Amador Branch	141	46024	46023	Do	144	1279	6054
Arkansas Central	219	29002	29002	Champlain and St. Lawrence	124	6068	
Ashburnham. (See G. C. Winchester, purchaser.)				Chesapeake and Ohio	86	11005	
Atchison and Nebraska	102	33009	33012	Chicago and Iowa (late Chicago, Rockford and Northern)	175	23057	
Atchison, Topeka and Santa Fé	68	33007	33010	Chicago and Northeastern	242	24039	
Do	91	33007	33011	Chicago and Northwestern	249	25030	
Do	112	33013		Do, (lessee Maple River)	300	27038	
Do	128	33007		Chicago, Milwaukee and Saint Paul	283	25031	
Do	145	33007		Do	38	26011	
Do	58	33013	33016	Chicago, Rockford and Northern (See Chicago and Iowa.)			
Do, (lessee Florence)	230	33017	33017	Chicago, Saginaw and Canada	297	24040	
El Dorado and Walnut Valley				Cincinnati and Eastern	189	21052	
Do	240	33017		Cincinnati Southern	129	20021	
Bachman Valley	327	8084	8082	Clinton and Port Hudson	328	30006	30006
Baltimore and Potomac	14	10013		Colorado Central	150	38004	38003
Baton Rouge, Gros Tête and Opelousas	331	30005	30005	Do	202	38004	38003
Bedford, Springfield, Owensburg and Bloomfield	258		22036	Do	211	38004	38003
Bellaire and Saint Clairsville				Columbus, Washington and Cincinnati	272	21057	
Narrow Gauge	229	21058		Connecticut and Passumpsic Rivers and Massachusetts Valley	58	402	2010
Belleville and El Dorado	271	23061		Covington, Columbus and Black Hills	253	34007	34007
Bell's Gap	290	8089	8087	Do	258	34007	
Bennington and Rutland	63	2015		Covington, Flemingsburg and Pound Gap	352	20020	
Do	69	2015		Crooked Creek Railway and Coal Company	303	27037	
Bingham Cañon and Camp Floyd	295	41004	41004	Cumberland Valley	111	8030	
Boston, Barre and Gardner	95	680	3057	Do, (lessee Southern Pennsylvania)	225	8073	8071
Do	123	657	3058	Do	311	8082	8080
Boston, Concord and Montreal	60	252	1005	Dakota Southern	109	35001	35001
Do	80	281	1006	Danbury and Norwalk	75	910	5013
Do	184	359	1007	Do	235	910	5013
Boston and Lowell and Nashua and Lowell	122	257	1011	Do	278	910	5013
Do	26	903	3016	Dayton and Southeastern	208	21054	
Do	168	623	3017	Delaware and Hudson Canal	226	1244	6027
Do	176	624	3018	Denver and Boulder Valley	120	38003	38002
Do	181	625	3019	Denver and Rio Grande	72	38001	38001
Do	163	627	3020	Do	200	38001	38001
Boston and Maine	57	221	11	Do	85	38006	38004
Do	106	259	1013	Duck River Valley	296	19018	
Do	31	602	3011	East Broad Top Railroad and Coal Company	313	8087	8085
Do	178	602	3011	Eastern	20	129	9
Do	177	610	3012	Do	322	351	1015
Do	185	621	3013	Do	317	360	1016
Do	172	652	3014	Do	19	601	3001
Do	268	745	3015	Do	179	615	3002
Boston and New York Air Line	45	913	5014	Do	121	618	3003
Boston and Providence	170	616	3038	Do	185	619	3004
Buffalo Valley	278	8092	8090	Do	307	620	3005
Burlington and Lamoille	192	2014		Do	199	654	3007
Burlington and Missouri River in Nebraska	127	34002	34002	Do	286	741	3008
Do	113	34004	34004	Do	201	742	3009
Do	209	34006	34006	Do	282	743	3010
Burlington and Northwestern	277	27035		Eastern Kentucky	310	20014	
California Northern	207	46009	46009	East Line and Red River	244	31014	31013
Do	190	46023	46022	Emmorton and Shippensburg	197	8108	8105
California Pacific	88	46006	46006	Do	196	8105	
Do	213	46007	46007	Erie	135	1203	6003
Do	204	46008	46008	Do	16	6001	
Camden and Atlantic	148	7015		Do	27	6008	
Do	280	7016		Eureka and Palisades	132	45002	45002
Central of New Jersey	294	7040		Fall Brook Coal Company	288	8020	8111
Do	305	8103	8101	Do, (operating Syracuse, Geneva and Corning)	87	6103	
Central Pacific	21	46001	46001	Fall River	267	754	3054
Do	62	46003	46003	Fitchburg	30	604	3021
Do	106	46010	46010	Do	42	646	3022
Do	195	46027	46026	Do	243	646	3022
Central Vermont	32	401	2001	Do	251	626	3023
Do	29	403	2002				
Do	233	403	2002				
Do	36	406	2003				
Do	33	405	2004				
Do	99	408	2006				
Do	117	409	2007				
Do	82	525	2008				

Index for Table E—Continued.

Title.	Order.	Number of route.	New number of route.	Title.	Order.	Number of route.	New number of route.
Fitchburg	140	628	3024	Missouri, Kansas and Texas	39	28014	.....
Fort Scott, Southeastern and Memphis	321	33014	33018	Do	291	33006	33009
Fredonia and Dunkirk	49	1250	6059	Missouri Pacific	17	28001	.....
Galveston, Harrisburg and San Antonio	101	31002	31002	Monticello and Port Jervia	167	1270	6078
Galveston, Houston and Henderson	47	31001	31001	Morgan's, Louisiana and Texas	93	30003	30003
Geneva, Ithaca and Sayre (late Geneva, Ithaca and Athens)	137	1293	6077	Narragansett Pier	187	830	4007
Do	162	1266	6072	Nashville and Chattanooga	329	19015	.....
Grand Trunk of Canada	273	2504	.....	Nashville, Chattanooga and Saint Louis	227	19018	.....
Hannibal and Saint Joseph	24	28005	.....	Natchez, Jackson and Columbus	260	18010	.....
Do	171	28005	.....	Nebraska	155	34005	34005
Do	25	28010	.....	Nevada County Narrow Gauge	186	46020	46019
Harlem Extension Railroad and South Coal Transportation Co.	156	6054	.....	New Brunswick and Canada	218	14	16
Havana, Rantoul and Eastern	320	23058	.....	New Orleans and Texas	232	30002	30002
Hot Springs	134	29006	29005	Newton and Monroe	29	37036	.....
Houston and Texas Central	78	31003	31003	New York and Harlem	71	1219	6022
Do	78	31004	31004	Do	255	1291	6023
Do	105	31005	31005	New York Central and Hudson River	10	.....	6011
Indianapolis, Delphi and Chicago	265	22038	.....	Do	11	1211	6011
International and Great Northern	52	31006	31006	Do	103	1212	6012
Do	174	31006	31006	Do	53	1213	6013
Do	182	31006	31006	Do	119	1214	6014
Do	180	31007	31007	Do	118	1215	6015
Do	330	31008	31008	Do	114	1216	6016
Ithaca and Athens. (See Geneva, Ithaca and Athens.) .....	.....	.....	.....	Do	9	1211	6017
Joplin	246	33016	33020	Do	35	1218	6018
Junction City and Fort Kearney	152	33012	33015	Do	281	1805	6020
Kansas Central	173	33010	33013	Do	184	1811	6021
Kansas City, Burlington and Santa Fe	309	33015	33019	New York and New England (lesses Norwich and Worcester)	98	901	5001
Kansas City, Saint Joseph and Council Bluffs	55	28006	.....	New York and Oswego Midland	245	1236	6101
Kansas Pacific	24	33001	.....	Northeastern of Georgia	230	15025	.....
Do	51	33001	33001	Northern Pacific	147	43001	43001
Do	90	33001	33002	North Pacific Coast	203	46016	46016
Lake Shore and Michigan Southern	15	21007	.....	Do	283	46016	46016
Do	12	21045	.....	North Pennsylvania	74	8004	.....
Do	3	6052	.....	Do	212	8004	.....
Do	4	6052	.....	North Wisconsin	250	25028	.....
Do	5	6052	.....	Ogdensburg and Lake Champlain	96	1242	6053
Do	6	6052	.....	Do	96	6053	.....
Do	7	6052	.....	Ohio Central	287	21055	.....
Do	22	6052	.....	Old Colony	70	3039	.....
Leavenworth, Lawrence and Galveston	125	33003	33004	Do	44	3041	.....
Do	158	33003	33005	Do	143	3044	.....
Lehigh Valley	46	8010	.....	Omaha and Northwestern	104	34003	34008
Do	231	8011	.....	Omaha and Republican Valley	159	34008	34008
Do	284	8012	8012	Ontario Southern (late Sodus Point and Southern)	180	1285	6090
Do	37	8077	8075	Oregon and California	79	44001	44001
Do	108	8016	.....	Oregon Central	218	44002	44002
Do	259	8016	.....	Parker and Kams City	214	8088	8088
Do	285	8016	.....	Pennsylvania (lesses)	306	8037	8036
Lewistown, Center and Spruce Creek. (See Pennsylvania.) .....	.....	.....	.....	Do	304	8037	8036
Little Rock and Fort Smith	131	29005	.....	Do., (lesses Lewiston, Center and Spruce Creek)	234	8067	.....
Do	130	29005	29003	Do	153	8068	8067
Little Rock, Mississippi River and Texas	325	29007	29004	Do	1	7004	.....
Los Angeles and Independence	315	46021	46020	Do	116	7006	.....
Marquette, Houghton and Ontonagon	191	24041	.....	Do	262	7007	.....
Do	318	24041	.....	Do	266	7011	.....
Memphis and Little Rock	77	29001	29001	Do	318	7012	.....
Do	100	29001	.....	Do	2	8001	.....
Milwaukee, Lake Shore and Western	205	25018	.....	Do., (lesses Sunbury and Lewistown)	241	8108	.....
Minneapolis and Saint Louis	161	28006	.....	Do., (operating Southwest ern)	293	8104	.....
Missisquoi and Clyde Rivers	73	522	2009	Philadelphia and Darby	83	8006	.....
Missouri, Kansas and Texas	41	28011	.....	Philadelphia, Wilmington and Baltimore	50	9501	.....
				Do	13	10001	.....
				Pittsburg and Connellsville	97	8063	.....
				Pittsburg, Fort Wayne and Chicago	23	21002	.....

Index for Table E—Continued.

Title.	Order.	Number of route.	New number of route.	Title.	Order.	Number of route.	New number of route.
Portland and Ogdensburg	54	12	10	Stony Creek	302	8100	808
Do.	61	410	2011	Sunbury and Lewiston. (See Pennsylvania.)			
Do.	104	2011		Sussex	215	7025	
Portsmouth, Great Falls and Conway	146	260	1014	Do	257	7025	
Placerville and Sacramento Valley	193	46004	46004	Syracuse, Geneva and Corning. (See Fall Brook Coal Company.)			
Republican Valley	142	33019	33022	Texas and New Orleans	324	31013	
Rock Island and Mercer County	247	23059		Do	217	31013	31012
Royal Land Company	221	11020		Texas and Pacific	78	31019	31019
Sacramento Valley	133	46005	46005	Do	43	31010	31010
Saginaw Valley and Saint Louis	223	24030		Do	157	31011	31011
Saint Joseph and Denver City	292	33004	33007	Tioga	154	8020	
Saint Louis, Hannibal and Keokuk	261	28029		Do	264	8020	
Saint Louis, Iron Mountain and Southern	28	28002		Do	275	8020	
Do.	48	28002		Troy and Boston	64	1229	006
Do.	183	28002		Do	67	1229	006
Do.	40	28026		Tuckerton	312	7002	
Do.	94	28034		Tyler Tap	267	31015	31014
San Francisco and North Pacific	115	46011	46011	Union Pacific	18	34001	34001
Do.	301	46028	46027	Do., (Central Branch)	81	33002	33002
Santa Cruz	108	46022	46021	Utah Central	89	41001	41001
Santa Cruz and Felton	289	46026	46025	Utah Northern	126	41003	41003
Sodus Point and Southern. (See Ontario Southern.)				Utah Southern	138	41002	41002
Southern Pacific	136	46002	46002	Utah Western	254	41005	41005
Do.	238	46002	46002	Vaca Valley	236	46015	46015
Do.	314	46013	46013	Do	237	46015	
Do.	92	46014	46014	Vicksburg, Shreveport and Texas	308	39008	39008
Do.	149	46017	46017	Virginia and Truckee	107	45001	45001
Southern Pennsylvania. (See Cumberland Valley.)				Visalia	222	46019	46018
Southwestern. (See Pennsylvania.)				Waterville and Washington	139	39018	39021
Southwestern (Ky)	248	20022		Waukon and Mississippi	299	27040	
Spartanburg and Asheville	239	14011		West Chester	323	8049	8048
Spartanburg, Union and Columbia	224	14008		West Feliciana	319	30007	30007
Stockton and Copperopolis	199	46012	46012	Williamstown	326	7005	
Do.	270	46012	46012	Winchester G. C., purchaser of Ashburnham Railroad	274	753	3079
				Wisconsin Central	208	25017	
				Do	188	25027	
				Woodstock	228	532	5013

Index for Table F.

Title.	Order.	Number of route.	New number of route.	Title.	Order.	Number of route.	New number of route.
Adirondack	117	1804	6095	Chesapeake and Ohio	87	11005	.....
Amador Branch	151	46024	46023	Chicago, Milwaukee and Saint Paul	82	26011	.....
Arkansas Central	257	29002	.....	Do.	248	25031	.....
Atchison and Nebraska	112	33009	33012	Chicago and Iowa (late Chicago, Rockford and Northern)	170	23057	.....
Atchison, Topeka and Santa Fé	53	33013	33016	Chicago and Northeastern	219	24039	.....
Do.	56	33013	33013	Chicago and Northwestern	228	25030	.....
Do.	63	33007	.....	Do. (lessees Maple River)	287	27038	.....
Do.	66	33007	33010	Chicago, Saginaw and Canada	284	24040	.....
Do.	96	33007	.....	Cincinnati and Eastern	179	21052	.....
Do.	98	33007	33011	Cincinnati Southern	135	20021	.....
Do.	216	33017	.....	Colorado Central	138	38004	38003
Do. (lessees Florence, El Dorado and Walnut Valley)	261	33017	.....	Do.	153	38004	38003
Baltimore and Potomac	16	10013	.....	Do.	196	38004	38003
Baton Rouge, Gross Tete and Opelousas	305	30005	.....	Clinton and Port Hudson	304	30006	.....
Bedford, Springville, Owensburg and Bloomfield	298	22036	.....	Columbus, Washington and Cincinnati	243	21057	.....
Belleville and El Dorado	242	23061	.....	Connecticut, Passumpsic Rivers and Massachusetts Valley	45	402	2010
Bell's Gap	296	8089	8087	Covington, Columbus and Black Hills	232	34007	.....
Bellaire and Saint Clairsville	211	21056	.....	Do.	270	34007	.....
Narrow Gauge	59	2015	.....	Covington, Flemingsburg and Pound Gap	230	20020	.....
Bennington and Rutland	65	2015	.....	Crooked Creek Railway and Coal Company	289	27037	.....
Bingham Cañon and Camp Floyd	274	41004	.....	Cumberland Valley	97	8030	.....
Boston, Concord and Montreal	97	252	1005	Do.	235	8082	8080
Do.	53	261	1006	Dakota Southern	119	35001	.....
Do.	249	359	1007	Danbury and Norwalk	67	910	5013
Boston and Lowell and Nashua and Lowell	24	603	3016	Dayton and Southeastern	163	21054	.....
Do.	113	627	3020	Denver and Boulder Valley	269	38003	38002
Do.	125	257	1011	Denver and Rio Grande	83	38001	.....
Do.	205	623	3017	Do.	85	38006	.....
Do.	217	624	3018	Do.	91	38006	38004
Do.	229	625	3019	Do.	141	38001	.....
Boston and Maine	31	602	3011	Do.	283	19018	.....
Do.	35	221	11	Duck River Valley	.....	.....	.....
Do.	148	259	1013	East Broad Top Railroad and Coal Company	282	8087	8025
Do.	209	652	3014	Eastern Kentucky	281	20014	.....
Do.	220a	602	3011	Eastern	22	601	3001
Do.	221	610	3012	Do.	23	129	9
Do.	297	621	3013	Do.	137	742	3009
Boston and New York Air Line	40	913	5014	Do.	174	{ 618 651 }	3003
Boston, Barre and Gardner	95	660	3057	Do.	177	619	3004
Do.	143	657	3058	Do.	204	620	3005
Boston and Providence	208	616	3036	Do.	206	654	3007
Burlington and Lamoille	185	2014	.....	Do.	225	615	3002
Burlington and Missouri River (in Nebraska)	78	34004	.....	Do.	233	351	1015
Do.	79	34002	.....	Do.	250	360	1016
Do.	190	34006	.....	East Line and Red River	220	31014	.....
Burlington and North Western	246	27035	.....	Do.	267	31014	31013
California Northern	181	46023	46022	Emmerton and Shippensburg	144	8105	.....
Do.	184	46009	.....	Do.	194	8108	8105
Do.	191	46023	46022	Erie	21	6001	.....
California Pacific	103	46006	.....	Do.	38	6008	.....
Do.	167	46008	.....	Do.	202	1203	6003
Do.	197	46007	.....	Eureka and Pinaldes	120	45002	.....
Camden and Atlantic	126	7015	.....	Do.	147	45002	.....
Central Pacific	19	46001	.....	Fall Brook Coal Company (operating Syracuse, Geneva and Corning)	90	6103	.....
Do.	52	46010	.....	Do.	252	8020	8111
Do.	60	46003	.....	Fitchburg	27	604	3021
Do.	159	46027	46026	Do.	30	646	3022
Central Vermont	28	403	2002	Do.	140	628	3024
Do.	33	401	2001	Florence, Eldorado and Walnut Valley. (See Atchison, Topeka and Santa Fé.)	.....	.....	.....
Do.	37	405	2004	Fort Scott, Southeastern and Memphis	299	33014	83018
Do.	41	406	2003	Fredericks and Dunkirk	169	1250	6050
Do.	76	1279	6054	Galveston, Harrisburg and San Antonio	74	31002	.....
Do.	54	1279	6054	Galveston, Houston and Henderson	50	31001	.....
Do.	127	408	2006	.....	.....	.....	.....
Do.	170a	403	2002	.....	.....	.....	.....
Do.	173	409	2007	.....	.....	.....	.....
Do.	236	525	2008	.....	.....	.....	.....
Central of New Jersey	280	7040	.....	.....	.....	.....	.....
Do.	290	8103	8101	.....	.....	.....	.....
Champlain and Saint Lawrence	92	6066	.....	.....	.....	.....	.....

Index for Table F—Continued.

Title.	Order.	Number of route.	New number of route.	Title.	Order.	Number of route.	New number of route.
Geneva, Ithaca and Sayre (late Geneva, Ithaca and Athens) Do.	131 134	1266 1293	6072 6077	New York Central and Hudson River Do.	3 10	6011 1217	..... 6017
Grand Trunk of Canada.	245	250a	.....	Do.	11	1211	6011
Harlem Extension Railroad	.....	.....	.....	Do.	44	1218	6018
South Coal Transportation Company.	168	6054	.....	Do.	51	1213	6013
Havana, Rantoul and Eastern.	264	23058	.....	Do.	64	1212	6012
Hot Springs.	160	28006	29005	Do.	81	1216	6016
Houston and Texas Central.	58	.....	31003	Do.	180	1811	6021
Do.	118	31005	.....	Do.	200	1215	6015
Do.	122	31004	.....	Do.	213	1214	6014
Indianapolis, Delphi and Chicago.	240	22038	.....	New York and New England (lessees Norwich and Worcester)	84	901	5001
International and Great Northern.	46	31006	.....	Do.	72	1219	6022
Do.	82	31007	.....	New York and Oswego Midland	222	1236	6101
Do.	88	31007	.....	Northeastern of Georgia.	199	15025	.....
Do.	263	31006	.....	North Pacific Coast	166	46016	.....
Do.	272	31006	.....	Do.	239	46016	.....
Do.	301	31006	.....	Do.	273	46016	.....
Joplin.	223	33016	.....	North Pennsylvania	43	8004	.....
Do.	208	33016	33020	Do.	186	8004	.....
Junction City and Fort Kearney.	195	33012	33015	Northern Pacific.	124	43001	.....
Kansas Central.	260	33010	33013	Do.	133	43001	.....
Kansas City, Burlington and Santa Fe.	161	33015	33019	North Wisconsin.	171	25028	.....
Kansas City, Saint Joseph and Council Bluffs.	42	28006	.....	Ogdenburg and Lake Champlain	86	6053	.....
Kansas Pacific.	48	33001	.....	Do.	102	1242	6053
Do.	55	33001	.....	Ohio Central.	251	21055	.....
Do.	130	33001	33002	Old Colony.	49	3041	.....
Lake Shore and Michigan Southern.	.....	.....	.....	Do.	68	3039	.....
Do.	5	6052	.....	Do.	162	3044	.....
Do.	6	6052	.....	Omaha and Republican Valley	183	34008	.....
Do.	7	6052	.....	Omaha and Northwestern	189	34003	.....
Do.	8	6052	.....	Ontario Southern (late Sudus Point and Southern)	226	1285	6090
Do.	9	21007	.....	Oregon Central.	256	44002	.....
Do.	12	21045	.....	Oregon and California.	73	44001	.....
Do.	14	6052	.....	Parker and Karns City.	164	8088	8086
Do.	17	6052	.....	Pennsylvania.	1	7004	.....
Leavenworth, Lawrence and Galveston.	105	33003	33005	Do.	4	8001	.....
Do.	142	33003	33004	Do.	132	7006	.....
Lehigh Valley.	36	8077	8075	Do. (operating Southwestern)	185	8104	.....
Do.	47	8010	8010	Do. (lessees)	187	8037	8036
Do.	106	8016	8016	Do. (lessees Lewisburg Centre and Spruce Creek)	207	8068	8067
Little Rock and Fort Smith.	145	29005	29003	Do.	212	8067	.....
Do.	154	29005	.....	Do. (lessees Sunbury and Lewiston)	218	8108	.....
Little Rock, Mississippi River and Texas.	302	29007	.....	Do.	247	7012	.....
Do.	303	29007	29004	Philadelphia and Darby.	292	8006	.....
Los Angeles and Independence.	278	46021	46020	Philadelphia, Wilmington and Baltimore.	13	10001	.....
Marquette, Houghton and Ontonagon.	182	24041	.....	Do.	61	9501	.....
Do.	295	24041	.....	Pittsburgh and Connellsville.	80	8063	.....
Memphis and Little Rock.	75	29001	.....	Pittsburgh, Fort Wayne and Chicago.	20	21002	.....
Do.	94	29001	.....	Placerville and Sacramento Valley.	254	46004	.....
Milwaukee, Lake Shore and Western.	157	25018	.....	Do.	77	12	16
Minneapolis and Saint Louis.	110	26006	.....	Portland and Ogdenburg.	111	401	2011
Missouri, Kansas and Texas.	34	28011	.....	Do.	115	2011	.....
Do.	38	28014	.....	Portsmouth, Great Falls and Conway.	104	260	1014
Do.	156	33006	33009	Do.	152	33019	33022
Missouri Pacific.	18	28001	.....	Rock Island and Mercer County.	224	23059	.....
Mississquoi and Clyde River.	123	522	2809	Royal Land Company.	201	11020	.....
Monticello and Fort Jervis.	193	1270	6078	Sacramento Valley.	155	46005	.....
Morgan's Louisiana and Texas.	108	30003	.....	San Francisco and North Pacific.	107	46011	.....
Narragansett Pier.	176	830	4007	Do.	238	46028	46027
Nashville and Chattanooga.	237	19015	.....	Do.	293	46028	46027
Nashville, Chattanooga and Saint Louis.	210	19016	.....	Do.	258	46022	46021
Nebraska.	175	34005	.....	Santa Cruz.	253	46036	.....
Nevada County Narrow Gauge.	172	46020	46018	Santa Cruz and Felton.	279	46026	46025
New Brunswick and Canada.	192	14	16	Do.	227	20022	.....
Newton and Monroe.	285	27036	.....	Southwestern.	90	46014	.....
New Orleans and Texas.	262	30002	.....	Southern Pacific.	.....	.....	.....
New York Central and Hudson River.	2	6017	.....	.....	.....	.....	.....

Index for Table F—Continued.

Title.	Order.	Number of route.	New number of route.	Title.	Order.	Number of route.	New number of route.
Southern Pacific.....	109	48002	.....	Troy and Boston.....	198	1259	6067
Do.....	188	48017	.....	Tuckerton.....	238	7032	.....
Do.....	266	48002	.....	Tyler Tap.....	241	31015	.....
Do.....	277	48013	.....	Do.....	275	31015	31014
Spartansburg and Ashville.....	215	14011	.....	Union Pacific.....	15	34001	.....
Saint Louis, Iron Mountain and Southern.....	25	28002	.....	Union Pacific (Central Branch).....	121	33002	33003
Do.....	29	28026	.....	Utah Central.....	116	41001	.....
Do.....	100	28034	.....	Utah Northern.....	70	41003	.....
Do.....	244	28002	.....	Utah Southern.....	101	41002	.....
Saint Joseph and Denver City.....	129	33004	33007	Utah Western.....	231	41005	.....
Saint Louis, Hannibal and Keokuk.....	234	28029	.....	Do.....	271	41005	.....
Stockton and Copperopolis.....	128	48012	.....	Vaca Valley.....	214	48015	.....
Do.....	276	48012	.....	Do.....	265	48015	.....
Sussex.....	149	7025	.....	Vicksburg, Shreveport and Texas.....	188	30008	.....
Texas and New Orleans.....	203	31013	.....	Virginia and Truckee.....	89	45001	.....
Do.....	255	31013	31012	Visalia.....	250	46019	46018
Texas and Pacific.....	62	31009	.....	Waukon and Mississippi.....	286	27040	.....
Do.....	69	31009	.....	Waterville and Washington.....	150	33018	33021
Do.....	71	31010	.....	Westchester.....	291	8049	8048
Do.....	114	31011	.....	West Feliciana.....	300	30007	.....
Tioga.....	139	8020	.....	Williamstown.....	294	7035	.....
Troy and Boston.....	26	1259	6067	Wisconsin Central.....	158	25027	.....
				Do.....	178	25017	.....

G.—Statement of the number, description, and prices of mail-bags, mail-catchers, and mail locks and keys purchased, and of the expense incurred on account thereof, during the fiscal year ended June 30, 1878, viz :

Number.	Description.	Sizes.	Prices.	Cost.	Aggregate cost.
1,000	Leather mail-pouches	No. 2	\$5 70	\$5,700 00	
2,000	.....do.....	No. 3	4 75	9,500 00	
1,000	.....do.....	No. 4	3 80	3,800 00	
4,000	Royalty on same pouches.....		10	400 00	
					\$19,400 00
200	Canvas through registered pouches	No. 1	6 80	1,360 00	
200	.....do.....	No. 2	5 75	1,150 00	
400	.....do.....				2,510 00
2,000	Canvas catcher pouches		4 25		8,500 00
687	Leather horse mail-bags	No. 1	6 00	4,134 90	
659	.....do.....	No. 2	5 60	3,690 40	
52	.....do.....	No. 3	5 10	265 20	
1,398	Royalty of patent 1100 of same.....		10	110 00	
	Expenses incident to alterations of same.....			20 75	
					8,630 55
44,000	Jute canvas mail-sacks.....	No. 1	78	34,320 00	
9,500	.....do.....	No. 2	52	4,940 00	
6,000	.....do.....	No. 3	15	900 00	
59,500	.....do.....				40,160 00
3,000	Cotton canvas mail-sacks.....	No. 1	1 32	3,960 00	
600*	.....do.....	No. 1	78	468 00	
2,000	.....do.....	No. 2	1 02	2,040 00	
2,000*	.....do.....	No. 2	41	820 00	
4,000	.....do.....	No. 3	21	840 00	
400*	.....do.....	No. 3	25	100 00	
12,600	.....do.....				8,228 00
20,000	Mail-bag label-cases		12		
8,400	Sheets mail-bag label-cards.....		10 1/2	832 00	
2,000	.....do.....		05 1/2	110 00	
51,400	Mail-bag hooks.....		01 1/2	771 00	
	Royalty on same		00 1/2	257 00	
938,750	Printed wooden tags	3 1/2 milla.		3,985 62	
11,050	.....do.....	3 milla.		33 15	
					5,226 77
	Repairs of mail-bags				38,468 22
400	Mail-catchers	15 1/2		6,000 00	
1,200	Sockets	40		480 00	
100	Handles	40		40 00	
300	Rubber springs	60		180 00	
					6,700 00
	Total expense of mail-bags and mail-catchers.....				140,975 54
	MAIL LOCKS AND KEYS.				
4,000	Street letter-box locks.....		1 25	5,000 00	
500	Through registered mail-locks.....		1 75	875 00	
50	Keys for same.....		30	15 00	
	Total expense of mail locks and keys.....				5,890 00

* For registered foreign mails.

THOS. J. BRADY,
Second Assistant Postmaster-General.

II.—Statement of all contracts in operation June 30, 1878, for mail-bags, mail-catchers, mail-bag labels, and mail-bag-label cases.

Articles contracted for.	Name of contractors.	Residence.	Term of contract.		Prices paid.				
			From—	To—	Size No. 1.	Size No. 2.	Size No. 3.	Size No. 4.	Size No. 5.
Jute canvas mail-sacks	John Boyle	New York, N. Y.	July 1, 1875	July 1, 1879	\$0 66	\$0 53	\$0 15	.....	.....
Cotton canvas mail-sacks	do	do	July 1, 1875	July 1, 1879	1 32	1 03	21	.....	.....
Leather horse mail-bags	Polydore S. Thomson	do	July 1, 1875	July 1, 1879	6 60	5 60	5 10	.....	.....
Mail-catcher pouches	John Boyle	do	July 1, 1875	July 1, 1879 .....	.....	.....	4 25	.....	.....
Mail-bag-label cases	Gaylord Manufacturing Company	Chicopee, Mass.	July 1, 1875	July 1, 1879 .....	.....	.....	.....	.....	.....
Leather mail-pouches	J. C. Feltman	Albany, N. Y.	Nov. 20, 1875	July 1, 1879 .....	.....	.....	4 75	\$3 80	\$3 70
Use of patent for leather pouches	John Boyle	New York, N. Y.	Aug. 7, 1875	July 1, 1879	6 50	5 70	10	10	10
Printed wooden tags	A. J. Cullers	Woodstock, Va.	June 1, 1878	June 1, 1879	10	10	10	10	10
Mail-bag catchers	Younglove & Co.	Cleveland, Ohio .....	.....	.....	.....	.....	15 00	.....	.....
Mail-bag-catcher sockets	do	do .....	.....	.....	70	40	.....	.....	.....

* Until aggregate sum of payments amounts to \$10,000, when any further payment will cease for use of patent.

Statement of all contracts in operation June 30, 1878, for mail locks and keys.

Articles contracted for.	Name of contractor.	Residence.	Term of contract.		Prices paid.	
			From—	To—	Locks.	Keys.
Mail-bag locks and keys (brass)	James C. Mix	Syracuse, N. Y.	July 1, 1874	July 1, 1878	\$0 74	\$0 13
Mail-bag locks and keys (iron)	do	do	July 1, 1874	July 1, 1878	58	11

THOS. J. BRADY,
Second Assistant Postmaster-General.

I.—Railway post-office lines in the United States June 30, 1878.

Terminal points.	Miles of route.	Miles of service.	Service each way.	\$1,400.	\$1,300.	\$1,150.	\$1,000.	\$900.
Albany to Buffalo, N. Y.	298	2,384	Four daily	3	14	10	14	
Atlanta to Augusta, Ga.	171	342	Daily			3	1	
Baltimore, Md., to Canandaigua, N. Y.	325	650	do		3	1		
Baltimore, Md., to Grafton, W. Va.	280	1,130	Twice daily		10	7	3	
Bangor to Vanceborough, Me.	118	236	Daily			4		
Bloomington, Ill., to Mexico, Mo.	900	400	do		4			
Boston, Mass., to Portland, Me.	116	232	do		4	5		
Boston, Mass., to Troy, N. Y.	192	768	Twice daily			11	9	
Boston, Mass., to Saint Albans, Vt.	290	1,160	do	1	7	4	3	
Boston, Mass., to Albany, N. Y.	200	800	do	1	8	11	3	
Boston to Wellfleet, Mass.	122	488	do			5	1	
Boston to Fitchburgh, Mass.	50	100	Daily				1	
Boston, Mass., to Bangor, Me.	249	996	Twice daily	1	8	9	5	
Bristol to Chattanooga Tenn.	242	484	Daily		4	2	2	
Buffalo, N. Y., to Toledo, Ohio	295	1770	Thrice daily	4	11	26	23	
* Burlington to Council Bluffs, Iowa								
Cairo to Centralia, Ill.	112	224	Daily		3	2	1	
Chattanooga, Tenn., to Atlanta, Ga.	140	280	do	1	3	4		
Chicago, Ill., to Fort Howard, Wis.	244	484	do		4	7		
Chicago, Ill., to Toledo, Ohio	243	1,458	Thrice daily	3	15	29	20	
Chicago, Ill., to Burlington, Iowa	207	828	Twice daily		8	11	3	
Chicago to Freeport, Ill.	121	242	Daily			4	3	
Chicago, Ill., to Cincinnati, Ohio	310	620	do		7	5	7	
Chicago, Ill., to Iowa City, Iowa	237	474	do		4	5	1	
Chicago, Ill., to Cedar Rapids, Iowa	219	876	Twice daily		10	9	2	
Chicago to Centralia, Ill.	258	516	Daily		4	6		
Chicago, Ill., to Saint Louis, Mo.	220	560	do	1	6	7	2	
Chicago, Ill., to Davenport, Iowa.	183	366	do		4	3	1	
Chicago, Ill., to Dubuque, Iowa	202	404	do		4	4		
Chicago, Ill., to Sparta, Wis.	255	510	do	2	9	17		
Cleveland to Cincinnati, Ohio	244	488	do	1	6	4	1	
Cleveland, Ohio, to Indianapolis, Ind.	282	564	do		3	3	3	
* Clinton to Council Bluffs, Iowa								
Cincinnati, Ohio, to Saint Louis, Mo.	340	680	Daily		4	4	3	
* Davenport to Council Bluffs, Iowa								
Detroit, Mich., to Chicago, Ill.	284	568	Daily		4	7		
Grafton, W. Va., to Cincinnati, Ohio	309	618	do		5	4		
Grafton, W. Va., to Chicago, Ill.	559	1,118	do		8	3	6	
Galesburgh to Quincy, Ill.	99	198	do		2	3	1	
Indianapolis, Ind., to Saint Louis, Mo.	261	522	do		3	1	3	
La Fayette, Ind., to Quincy, Ill.	273	546	do		4	9	3	
Louisville, Ky., to Nashville, Tenn.	185	370	do	1	6	10	2	
Lynchburgh, Va., to Bristol, Tenn.	203	406	do	1	2	2	3	
Louisville, Ky., to Milan, Tenn.	284	568	do		3	3		
New Orleans, La., to Cairo, Ill.	548	1,096	do	1	7	5	4	
New York, N. Y., to Boston, Mass.	234	1,404	Thrice daily	1	12	15	7	
New York, N. Y., to Washington, D. C.	232	1,392	do	4	10	10	13	
New York to Dunkirk, N. Y.	459	1,836	Twice daily	1	11	19	14	
New York to Albany, N. Y.	144	864	Thrice daily	1	3	3	5	1
Omaha, Nebr., to Ogden, Utah	1,032	2,064	Daily	2	8	12	10	
Philadelphia to Pittsburgh, Pa.	358	2,864	Four daily	1	10	7	29	
Pittsburgh, Pa., to Saint Louis, Mo.	620	2,480	Twice daily		15	11	32	
Pittsburgh, Pa., to Cincinnati, Ohio	313	626	Daily		8	4	5	
Quincy, Ill., to Kansas City, Mo.	261	522	do		4	4	1	
Quincy, Ill., to Denison, Tex.	593	1,186	do		10	4		
* Rochester to Niagara Falls, N. Y.								
San Francisco, Cal., to Ogden, Utah	881	1,762	Daily	1	10	14	2	
Saint Louis, Mo., to Atchison, Kans.	330	1,320	Twice daily	4	9	17	1	
† Saint Louis, Mo., to Texarkana, Ark.	490	980	Daily	1		11	1	
Toledo, Ohio, to La Fayette, Ind.	203	406	do		4	7		
Washington, D. C., to Petersburg, Va.	155	620	Twice daily	2	9	9	9	
Washington, D. C., to Lynchburgh, Va.	178	356	Daily		4	2	3	
† Pittsburgh, Pa., to Chicago, Ill.	469	938	do		1	2	8	
* Hornellsville to Buffalo, N. Y.								
* Dubuque, Iowa, to Centralia, Ill.								
* Dubuque to Fort Dodge, Iowa								
* Petersburg to Weldon, Va.								
Total.....	16,980	49,134		39	343	419	275	1

* New route-agent service.

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[illegible]

Recapitulation and comparative statement of the

Number of lines of railway post-offices	
Aggregate number of miles of the above	
Number of miles of actual service performed daily	
Number of miles of actual service performed annually	
Number of head clerks at \$1,400 per annum	
Number of head clerks at \$1,300 per annum	
Number of clerks at \$1,150 per annum	
Number of assistant clerks at \$1,000 per annum	
Number of assistant clerks at \$900 per annum	
Number of assistant clerks at \$840 per annum	
Number of assistant clerks at \$500 per annum	
Total number of clerks	
With annual compensation amounting to	
Net increase in compensation	
Net increase in clerks	

service on June 30, 1877, and June 30, 1878.

June 30, 1877.	June 30, 1878.	Increase.	Decrease.
64	59		5
17,761	16,980		781
46,370	49,134	2,764	
16,925,030	17,933,910	1,008,880	
42	39		3
313	343	30	
411	419	8	
283	275		8
	1	1	
1	1		
1	3	2	
1,051	1,081	41	11
\$1,222,690	\$1,260,590		
		\$37,900	
		30	

THOS. J. BRADY,
Second Assistant Postmaster General.

12 P M G

K.—Railway post-office lines in

Terminal of route—Contract designation.	Corporate title of company.	Railway mail service designation.
Albany to Buffalo, N. Y.....	New York Central and Hudson River Railroad.	New York and Chicago r. p. o. .
Atlanta to Augusta, Ga.....	Georgia Railroad.....	Augusta and Atlanta r. p. o. . .
Baltimore, Md., to Canandaigua, N. Y.	Northern Central, and Philadelphia and Erie Railroad.	Williamsport and Baltimore r. p. o.
Baltimore, Md., to Grafton, W. Va.	Baltimore and Ohio Railroad.....	Baltimore and Grafton r. p. o. .
Bangor to Vanceborough, Me	Consolidated European and North American Railroad.	Vanceboro' and Bangor r. p. o. .
Bloomington, Ill., to Mexico, Mo.	Chicago and Alton Railroad.....	Bloomington and Mexico r. p. o.
Boston, Mass., to Portland, Me	Boston and Maine Railroad.....	Portland and Boston r. p. o. . .
Boston, Mass., to Troy, N. Y. .	Vermont and Massachusetts Division of Fitchburg Railroad; Troy and Greenfield and Troy and Boston Railroads.	Boston and Troy r. p. o.
Boston, Mass., to Saint Albans, Vt.	Central Vermont, Northern (N. H.) and Concord and Boston, Lowell and Nashua Railroad.	Saint Albans and Boston r. p. o
Boston, Mass., to Albany, N. Y	Boston and Albany Railroad	Boston and Albany r. p. o. . . .
Boston to Wellfleet, Mass...	Old Colony Railroad	Boston and Wellfleet r. p. o. . .
Boston to Fitchburg, Mass..	Boston and Albany, and Boston, Clinton and Fitchburg and New Bedford Railroads.	Boston, Clinton, and Fitchburg r. p. o.
Boston, Mass., to Bangor, Me	Maine Central and Eastern Railroads..	Bangor and Boston r. p. o.
Bristol to Chattanooga, Tenn.	East Tennessee, Virginia and Georgia Railroad.	Bristol and Chattanooga r. p. o.

the United States on June 30, 1878.

Distance, miles.	Miles of annual service.	Number of round trips per week over whole or portion of route.	Number of railway post-office cars.	Dimension of mail-cars.		Day or night service.	Number of round trips per week over whole route.	Mails by express trains.
				Length.	Width.			Number of round trips per week over portion of route, and between what points.
298	870, 160	28	6	50 0	9 0	Day and night	.....
			6	60 0	9 0	do	.....
			8	49 5	9 0	do	.....
			2	40 0	9 0	do	.....
			1	41 4	9 0	do	.....
			1	45 10	9 0	do	.....
171	124, 830	7	1	21 0	8 8	Day	.....	6
			2	25 0	8 8		.....
325	237, 250	6	2	40 0	8 6	Day and night	.....
			1	40 0	8 6	Reserve	.....
			1	45 0	8 6	do	.....
280	408, 800	14	8	51 0	8 9	Day and night	.....	7
118	86, 140	6	2	21 0	9 6	Day	.....	6
			2	21 0	9 6	Reserve	.....
300	146, 000	6	3	25 6	8 0	Day	.....
116	84, 680	12	2	25 2	8 6	do	.....
			1	25 2	8 6	Reserve	.....
192	220, 330	18	1	30 0	8 9	Night	.....	12
			1	30 0	5 0	do	.....
			2	15 0	6 2	Day	.....
			1	16 0	6 6	do	.....
			1	14 0	6 6	do	.....
			1	17 6	6 4	Reserve	.....
			2	15 0	6 2	do	.....
290	423, 400	12	1	41 9	8 7	Day	.....
			1	42.5	8 9	do	.....
			1	40 5	8 9	do	.....
			1	23 9	6 6	do	.....
			1	21 7	6 9	Reserve	.....
			1	25 0	7 0	do	.....
290	292, 000	12	4	27 7	8 7½	Day	.....	6
			1	27 7	8 7½	Reserve	.....
122	178, 120	12	2	14 0	8 4	Day	.....
			1	10 2	6 6	do	.....
			1	10 2	6 6	Reserve	.....
			1	12 8	8 4	do	.....
50	36, 500	6	1	14 0	6 9	Day	.....
249	363, 540	12	1	42.0	8 7½	do	.....
			1	40.0	8 7½	Night	.....
			2	29 0	8 7½	Reserve	.....
242	176, 660	7	3	38 6	9.0	Day	.....

K.—*Railway post-office lines in the United*

Termini of route—Contract designation.	Corporate title of company.	Railway mail service designation.
Buffalo, N. Y., to Toledo, Ohio	Lake Shore and Michigan Southern Railroad.	New York and Chicago r. p. o.
Cairo to Centralia, Ill.	Illinois Central Railroad	Centralia and Cairo r. p. o.
Chattanooga, Tenn., to Atlanta, Ga.	Western and Atlantic Railroad	Chattanooga and Atlanta r. p. o.
Chicago, Ill., to Fort Howard, Wis.	Chicago and Northwestern Railroad...	Fort Howard and Chicago r. p. o.
Chicago, Ill., to Toledo, Ohio..	Lake Shore and Michigan Southern Railroad.	New York and Chicago r. p. o.
Chicago, Ill., to Burlington, Iowa.	Chicago, Burlington and Quincy Railroad.	Chicago and Burlington r. p. o.
Chicago to Freeport, Ill.	Chicago and Northwestern Railroad ..	Chicago and Dubuque r. p. o. ..
Chicago, Ill., to Cincinnati, Ohio.	Illinois Central, Cincinnati, La Fayette and Chicago, and Indiana, Cincinnati and La Fayette Railroads.	Chicago and Cincinnati r. p. o.
Chicago, Ill., to Iowa City, Iowa.	Chicago, Rock Island and Pacific Railroad.	Chicago and Iowa City r. p. o.
Chicago, Ill., to Cedar Rapids, Iowa.	Chicago and Northwestern Railroad...	Chicago and Cedar Rapids r. p. o.
Chicago to Centralia, Ill.	Illinois Central Railroad	Chicago and Centralia r. p. o.
Chicago, Ill., to Saint Louis, Mo.	Chicago and Alton Railroad	Chicago and Saint Louis r. p. o.
Chicago, Ill., to Davenport, Iowa.	Chicago, Rock Island and Pacific Railroad.	Chicago and Davenport r. p. o.
Chicago, Ill., to Dubuque, Iowa.	Illinois Central and Chicago and Northwestern Railroads.	Chicago and Dubuque r. p. o.
Chicago, Ill., to Sparta, Wis.	Chicago, Milwaukee and Saint Paul Railroad.	Chicago and Sparta r. p. o.
Cleveland to Cincinnati, Ohio	Cleveland, Columbus, Cincinnati and Indianapolis Railroad.	Cleveland and Cincinnati r. p. o.
Cleveland, Ohio, to Indianapolis, Ind.	.....do	Cleveland and Indianapolis r. p. o.
Cincinnati, Ohio, to Saint Louis, Mo.	Ohio and Mississippi Railroad	Cincinnati and Saint Louis r. p. o.
Detroit, Mich., to Chicago, Ill.	Michigan Central Railroad	Detroit and Chicago r. p. o.
Grafton, W. Va., to Cincinnati, Ohio.	Baltimore and Ohio Railroad	Grafton and Cincinnati r. p. o.
Grafton, W. Va., to Chicago, Ill.	.....do	Grafton and Chicago r. p. o.
Galesburg to Quincy, Ill.	Chicago, Burlington and Quincy Railroad.	Galesburg and Quincy r. p. o.
Indianapolis, Ind., to Saint Louis, Mo.	Indianapolis and Saint Louis Railroad.	Indianapolis and Saint Louis r. p. o.
La Fayette, Ind., to Quincy, Ill.	Wabash Railroad	La Fayette and Quincy r. p. o.
Louisville, Ky., to Nashville, Tenn.	Louisville and Nashville Railroad	Louisville and Nashville r. p. o.
Lynchburgh, Va., to Bristol, Tenn.	Virginia and Tennessee Division A., M. and Ohio Railroad.	Lynchburgh and Bristol r. p. o.
Louisville, Ky. to Milan, Tenn.	Louisville and Nashville Railroad	Louisville and Milan r. p. o.
New Orleans, La., to Cairo, Ill.	New Orleans, Saint Louis and Chicago Railroad.	Cairo and New Orleans r. p. o.
New York, N. Y., to Boston, Mass.	New York, New Haven and Hartford, and Boston and Albany Railroads.	Boston, Springfield, and New York r. p. o.

States on June 30, 1878—Continued.

Distance, miles.	Miles of annual service.	Number of round trips per week over whole or portion of route.	Number of railway post-office cars.	Dimension of mail cars.		Day or night service.	Number of round trips per week over whole route.	Mails by express trains.
				Length. Width				
				<i>Ft.</i>	<i>in.</i>	<i>Ft.</i>	<i>in.</i>	
295	646, 050	21	6	50 0	9 0	Day and night	12, Buffalo to Erie.	
			6	60 0	9 0	do		
			2	49 5	9 0	do		
			2	40 0	9 0	do		
			1	41 4	9 0	do		
			1	45 10	9 0	do		
112	21, 760	6	1	44 5	9 0	Day		
140	102, 200	7	2	39 4	8 7	Day and night		
			1	35 6	7 10	Reserve		
			2	25 0	8 6	Day		
242	176, 660	6	2	49 4	9 3	do	10, Chicago to Harvard; 1, Harvard to Clinton; 7, Clinton to Jefferson; 6, Jefferson to Watertown; 7, Fond du Lac to Green Bay.	
243	532, 170	21	6	50 0	9 0	Day and night		
			6	60 0	9 0	do		
			2	49 5	9 0	do		
			2	40 0	9 0	do		
			1	41 4	9 0	do		
			1	45 10	9 0	do		
307	302, 220	12	2	54 10	8 10	Day	6, Aurora to Burlington.	
			2	52 0	8 10	Night	6, Chicago to Aurora.	
121	88, 330	6	2	35 4	9 3	Day	6, Chicago to Elgin.	
			3	40 0	9 5	Day and night	6, La Fayette to Indianapolis.	
310	226, 300	13	3	50 0	9 5	do	6, Indianapolis to Cincinnati. (Now twice daily.)	
237	173, 010	6	2	50 0	9 5	Day	3, Chicago to Davenport, Iowa; 6, Chicago to Minooka.	
219	319, 740	12	2	49 4	9 3	do	6, Chicago to Cortland Station.	
			2	35 4	9 3	Night	3, Clarence to Cedar Rapids.	
258	182, 340	6	2	44 5	9 0	Day	6, Chicago to Kankakee.	
220	204, 400	6	2	44 0	8 0	do	6, Chicago to Bloomington; 6, Springfield to Virden.	
183	133, 590	6	2	41 6	9 5	Night		
302	147, 460	6	2	35 4	9 3	Day	6, Chicago to Freeport; 6, Chicago to Elgin.	
235	186, 150	12	2	50 0	9 5	Day	3, Chicago to Milwaukee. (Now twice daily.)	
			2	39 3	9 5	Night	6, Milwaukee to Watertown.	
			1	39 3	9 5	Reserve		
244	178, 120	6	3	39 2	9 2	Day	7	
282	205, 860	6	2	39 2	9 2	do	7	
340	248, 200	6	1	45 0	9 9	do	7	
			2	50 0	9 9	do		
284	207, 320	6	2	45 0	9 6	do	24	
309	225, 570	7	2	51 8	9 4	do	7	
559	408, 070	7	5	51 8	9 4	do	6	
99	72, 270	12	2	44 0	9 6	Day and night	Now twice daily.	
261	190, 530	6	3	40 0	9 0	Day	6	
273	199, 290	6	2	50 8	10 0	do		
			1	50 8	10 0	Reserve	7	
185	135, 050	7	2	45 0	9 0	Day		
203	148, 190	7	4	41 0	8 7	do	7	
284	207, 320	7	3	45 0	9 0	Night	7	
348	400, 040	7	5	25 0	9 0	Day and night		
			1	25 0	9 0	Reserve		
234	512, 460	18	2	55 0	8 9	Day	3, Boston to Newton; 3, Boston to Natick; 3, Boston to Grafton.	

K.—Railway post-office lines in the United

Termini of route—Contract designation.	Corporate title of company.	Railway mail service designation.
New York, N. Y., to Washington, D. C.	Pennsylvania, Philadelphia, Wilmington and Baltimore, and Baltimore and Potomac Railroads.	New York and Washington r. p. o.
New York to Dunkirk, N. Y.	New York, Lake Erie and Western Railroad.	New York and Dunkirk r. p. o.
New York to Albany, N. Y.	New York Central and Hudson River Railroad.	New York and Chicago r. p. o.
Omaha, Nebr., to Ogden, Utah	Union Pacific Railroad.	Omaha and Ogden r. p. o.
Philadelphia to Pittsburgh, Pa.	Pennsylvania Railroad.	Philadelphia and Pittsburgh r. p. o.
Pittsburgh, Pa., to Saint Louis, Mo.	Pittsburgh, Cincinnati and Saint Louis Railroad.	Pittsburgh and Saint Louis r. p. o.
Pittsburgh, Pa., to Cincinnati, Ohio.	do.	Pittsburgh and Cincinnati r. p. o.
Quincy, Ill., to Kansas City, Mo.	Hannibal and Saint Joseph Railroad.	Quincy and Kansas City r. p. o.
Quincy, Ill., to Denison, Tex.	Missouri, Kansas and Texas Railroad.	Quincy and Denison r. p. o.
San Francisco, Cal., to Ogden, Utah.	Central Pacific.	Ogden and San Francisco r. p. o.
Saint Louis, Mo., to Atchison, Kans.	Missouri Pacific Railroad.	Saint Louis and Atchison r. p. o.
Saint Louis, Mo., to Texarkana, Ark.	Saint Louis, Iron Mountain and Southern Railroad.	Saint Louis, Little Rock and Texarkana r. p. o.
Toledo, Ohio, to La Fayette, Ind.	Wabash Railroad.	Toledo and La Fayette r. p. o.
Washington, D. C., to Petersburg, Va.	Richmond, Fredericksburgh and Potomac, and Richmond and Petersburg Railroads.	Washington and Petersburg r. p. o.
Washington, D. C., to Lynchburg, Va.	Washington City, Virginia Midland and Great Southern Railroad.	Washington and Lynchburg r. p. o.
	Pittsburgh, Fort Wayne and Chicago Railroad.	Pittsburgh and Chicago r. p. o.
<p>* New York to Philadelphia. † New York to Hornellsville. : Hornellsville to Dunkirk, 6.</p>		

States on June 30, 1878—Continued.

Distance.	Miles of annual service.	Number of round trips per week over whole or portion of route.	Number of railway post-office cars.	Dimension of mail-cars.		Day or night service.	Number of round trips per week over whole route.	Mails by express trains. Number of round trips per week over portion of route, and between what points.
				Length.	Width.			
<i>Miles.</i>				<i>Ft. in.</i>	<i>Ft. in.</i>			
232	502, 080	13	4	60 0	8 7½	Day and night.	.....	3, Elizabeth to New York; 3, Rahway to New York.
		*7	1	46 6	8 6	....do	.....	3, Trenton to New York; 3, Princeton Junction to New York.
		1		45 10	8 0	Reserve	.....
459	670, 140	†12	6	49 5	9 5	Day and night.	.....	13, New York to Paterson; 6, Corn- ing to Elmira; 6, Greycourt to Middletown; 6, Binghamton to Union; 6, Hornellsville to Dun- kirk.
		†6	1	49 5	9 5	Reserve	.....
144	315, 360	21	6	50 0	9 0	Day and night	.....
			6	60 0	9 0	....do	.....
			8	49 5	9 0	....do	.....
			2	40 0	9 0	....do	.....
			1	41 4	9 0	....do	.....
			1	45 10	9 0	....do	.....
1, 032	753, 360	7	7	50 0	9 9	Day and night	.....	6, Council Bluffs to Omaha.
356	1 045, 360	21	22	60 0	8 7½	....do	.....	9
620	905, 200	14	22	60 0	8 7½	....do	.....	6 6, Pittsburgh to Columbus; 6, Co- lumbus to Indianapolis
313	228, 490	14	22	60 0	8 7½	....do	.....	6, Columbus to Xenia. (Now twice daily.
261	190, 530	6	4	38 11	9 0	Day	.....	7
593	432, 890	7	5	50 0	9 0	Day and night	.....	7
281	643, 130	7	7	54 7	8 11	....do	.....	7, San Francisco to Stockton; 3, Sac- ramento to Reno.
		1		48 0	8 11	Reserve	.....
330	421, 800	14	5	50 0	9 0	Day and night.	.....	7, Kansas City to Atchison; 6, Kan- sas City to Leavenworth; 7, Saint Louis to Pacific; 6, Saint Louis to Kirkwood.
490	357, 700	7	5	40 0	9 0	....do	.....
203	148, 190	6	2	36 0	10 0	Day	.....	7
		1		45 0	9 4	....do	.....
155	226, 300	§20	3	50 0	0 0	Day and night	.....
		||13	2	42 0	0 0	....do	.....
178	129, 940	14	3	40 0	8 11	Day	.....	7 Now twice daily.
469	342, 370	7	5	50 0	8 4	Day and night	.....	7
16,980	17,933,910							

§ Washington to Richmond.

|| Richmond to Petersburg.

L.—Route-agent and mail-route messenger service

Number of route.	Contract designation, termini of route.	Corporate title of company.	Railway mail service designation.	Agent or mail-route messenger service.	Distance.
					Miles.
1	Augusta, Skowhegan	Maine Central Railroad	Skowhegan and Portland.	R. A.	19
3	Farmington, Brunswick.	do	Bath and Lewiston	R. A.	4
3	do	do	do	R. A.	19
4	Belfast, Burnham Village.	do	Belfast and Burnham Village.	M. R. M.	34
5	Portland, Bangor	do	Skowhegan and Portland.	R. A.	84
			North Anson and Lewiston.	R. A.	42
			Farmington and Lewiston.	R. A.	10
6	Portland, Augusta	do	Augusta and Portland	R. A.	62
	Branch, Bath, Brunswick.		Rockland and Brunswick.	R. A.	9
7	Portland, Canada line	Grand Trunk Railroad	Bath and Lewiston	R. A.	8
			Portland and Island Pond.	R. A.	149
			Portland and Shelburne	R. A.	91
8	Portland, Rochester	Portland and Rochester Railroad.	Portland and Worcester	R. A.	52
9	Portsmouth, Portland.	Eastern Railroad	Portland and Rochester	R. A.	52
			North Conway and Boston.	R. A.	11
10	Portland and Lunenburg Station.	Portland and Ogdensburg Railroad.	Portland and Fryeburg.	R. A.	67
13	Bangor, Bucksport	European and North American Railroad.	Bangor and Bucksport	M. R. M.	16
14	Blanchard Old Town	do	Blanchard and Old Town.	R. A.	63
15	Bath, Rockland	Knox and Lincoln Railroad	Rockland and Brunswick.	R. A.	49
18	West Waterville and North Anson.	Somerset Railroad	North Anson and Lewiston.	R. A.	20
1001	Concord, Nashua	Concord Railroad	Lancaster and Boston	R. A.	18
			Lawrence and Claremont.	R. A.	18
1002	Concord, Portsmouth	do	Portsmouth and Manchester.	R. A.	41
1004	Hooksett, Pittsfield	do	Pittsfield and Hooksett	M. R. M.	20
1005	Concord, Wells River	Boston, Concord and Montreal Railroad.	Lancaster and Boston	R. A.	59
			Plymouth and Concord	R. A.	51
1006	Groveton, Wells River	Boston, Concord and Montreal and White Mountains.	Lancaster and Boston	R. A.	42
			Portland and Swanton	R. A.	9
1009	Concord, Claremont	Concord and Claremont Railroad.	Lawrence and Claremont.	R. A.	36
1010	Contoocook Village, Hillsborough.	do	Contoocook and Hillsborough Bridge.	M. R. M.	15
1012	Nashua, Rochester	Nashua and Rochester R. R.	Portland and Worcester.	R. A.	49
1013	Dover, Alton Bay	Boston and Maine Railroad	Alton Bay and Dover	M. R. M.	28
1013	Wing Road, Fabyan House.	Boston, Concord and Montreal Railroad.	Portland and Swanton	R. A.	14
1014	Brock's Crosslug, North Conway.	Conway Division of Eastern Railroad.	North Conway and Boston.	R. A.	70
2001	Burlington, Rouse's Point.	Central Vermont Railroad	Saint Armands and Essex Junction.	R. A.	17
			Essex Junction and Boston.	R. A.	8
2002	Windsor, Burlington	do	Newport and Springfield	R. A.	14

in the United States on the 30th of June, 1878.

Annual miles of service.	Number of round trips per week over whole or portion of route.	Number of cars or apartments.	Dimension of cars or apartments.		Day or night service.	Mails by express trains.	
			Length.	Width.		Number of round trips over whole route.	Number of round trips per week over portion of route, and between what points.
11,856	6, Skowhegan to Portland.	2	16 0	7 0	Day		
4,992	12, Brunswick to South Lewiston.	1	12 0	6 9	do		
23,712	12, Brunswick to Lewiston.	1	7 6	10 0	do		6, Belfast and Knox Station.
21,216	6, Fairfield and Portland	1	12 6	6 7	do		
51,416	6, Lewiston and West Waterville.	1	12 6	6 7	do		
43,680	6, Farmington and Leeds Junction.	1	16 7	6 9	Reserve		
34,024	6, Bath and Brunswick	1	15 0	6 6	Day		
38,688	12, do	1	12 0	6 6	do	6	
11,232	12, do	1	15 6	6 8	do		3, Portland to South Auburn.
9,984	6, Portland and Stelburne.	1	17 6	7 6	do		3, Portland to Danville.
92,976	2, do	2	17 8	7 6	do		3, Portland to Yarmouth.
56,784	6, Portland and Stelburne.	2	20 8	7 0	Reserve		3, Portland to Cumberland.
32,448	6, Portland and Fryeburgh.	1	12 0	6 6	Day		6, Island Pond to Norton Mills.
16,224	3, do	1	10 8	7 0	do		
6,864	6, Portsmouth and Brock's Crossing.	1	18 0	6 0	do		
83,616	12, Portland and Fryeburgh.	2	13 6	6 7	do		
19,968	12, do	1	16 0	8 0	do		
39,312	6, do	1	18 0	9 0	Reserve		
60,152	12, do	1	14 0	9 0	Day		
12,480	6, do	1	9 0	6 8	Reserve		
11,232	6, do	1	14 6	7 2	Day		
11,232	6, do	1	12 6	6 7	do		
11,232	6, do	2	16 9	6 8	do		
11,232	6, do	2	12 0	7 0	Reserve		
25,584	6, Portsmouth and Manchester.	1	13 6	6 7	Day	3	3, Portsmouth to Manchester.
12,480	6, do	1	9 0	6 9	Reserve		
55,536	6, do	1	7 0	4 6	Day		
31,824	6, do	2	16 9	6 8	do		
26,208	6, Plymouth to Concord	2	12 0	7 0	Reserve	6	
5,616	6, Wells River to Lancaster.	2	16 9	6 8	Day	6	3, Groveton to Lancaster.
34,944	6, Wing Road to Lunenburg.	2	12 0	7 0	Reserve		3, Wells River to Wing Road.
9,360	6, do	2	13 6	6 7	Day		
61,152	12, do	2	16 9	6 8	do	3	3, Claremont to Claremont Junction.
34,944	12, do	2	12 0	7 0	Reserve		
8,736	6, do	1	7 0	6 0	Day		
87,360	12, do	1	12 0	6 6	do		
10,608	6, do	1	10 8	7 0	do		3, South Lee to Nashua.
4,992	6, do	1	9 4	6 6	do		
8,736	6, do	1	18 0	6 5	Reserve		3, Farmington to Dover.
87,360	12, do	2	13 6	6 7	Day	9	
10,608	6, do	1	18 0	6 0	do		
4,992	6, do	1	20 0	8 7	Day		
8,736	6, do	1	20 7	6 9	do		6, Swanton to Saint Albans.
4,992	6, do	1	23 9	6 6	Reserve		6, Burlington to Saint Albans.
8,736	6, do	1	14 0	6 6	Day		
8,736	6, do	1	15 0	6 2	Reserve		
8,736	6, do	1	21 8	6 6	Day		6, White River and Windsor.

L.—Route-agent and mail-route messenger service in the

Number of route.	Contract designation, terminal of route.	Corporate title of company.	Railway mail service designation.	Agent or mail-route messenger service.	Distance.
2002	Windsor, Burlington..	Central Vermont Railroad ..	White River Junction and Springfield.	R. A.	14
2003	Bellows Falls, Burlington.	.....do	Essex Junction and Boston.	R. A.	54
2004	Bellows Falls, Windsor.	.....do	White River Junction and Springfield.	R. A.	25
2005	Brattleboro, Bellows Falls.	Vermont Valley Railroad ..	Newport and Springfield	R. A.	25
2006	Saint Albans, Canada line.	Central Vermont Railroad ..	.....do	R. A.	24
2007	Saint Albans, Richford	.....do	Saint Armands and Essex Junction.	R. A.	17
2009	Richford, Newport....	Missisquoi and Clyde River Railroad.	Newport and Saint Albans.	R. A.	24
2010	White River Junction, Derby Line.	Connecticut and Passamaquoddy River and Massachusetts Valley Railroad.	Newport and Springfield	R. A.	106
2012	Wells River, Montpelier.	Montpelier and Wells River Railroad.	Wells River and Montpelier.	M. R. M.	3
2014	Burlington, Cambridge Junction.	Burlington and Lamville Railroad.	Cambridge Junction and Burlington.	R. A.	35
2015	Rutland, Bennington..	Bennington and Rutland Railroad.	Rutland and Hoosick Junction.	R. A.	51
3001	Boston, Portsmouth...	Eastern Railroad	North Conway and Boston.	R. A.	2
3011	Boston, Salmon Falls..	Boston and Maine Railroad.	Lancaster and Boston..	R. A.	26
3020	Ayer, Lowell	Boston and Lowell and Nashua and Lowell.	Lowell and Ayer	M. R. M.	17
3021	Boston, Fitchburg	Fitchburgh Railroad	Essex Junction and Boston.	R. A.	50
3024	Ayer, Greenville .....	.....do	Greenville and Boston	R. A.	35
3030	Palmer, Winchendon..	Boston and Albany Railroad.	.....do	R. A.	21
3034	Boston, Southbridge ..	New York and New England Railroad.	Winchendon and Palmer.	R. A.	49
			Boston and Willimantic	R. A.	70
3035	Boston, Providence...	Boston and Providence Railroad.	Boston and Providence	R. A.	41
3035	.....do .....	.....do	Boston, Providence and New York.	R. P. O..	41
3047	Sterling Junction, Fitchburgh.	Boston, Clinton and Fitchburgh Railroad.	Boston, Clinton and Fitchburgh.	R. A.	35
3048	Mansfield, South Framingham.	.....do	South Framingham and Mansfield.	R. A.	31
3049	South Framingham, Lowell.	Boston, Clinton and Fitchburgh and New Brunswick Railroad.	Lowell and South Framingham.	M. R. M.	25
3055	Fitchburgh, Bellows Falls.	Cheshire Railroad	Essex Junction and Boston.	R. A.	64
3056	South Vernon Junction, Keene.	Ashuelot Railroad	Keene and Springfield	R. A.	74

United States on the 30th of June, 1878—Continued.

Annual miles of service.	Number of round trips per week over whole or portion of route.	Number of cars or apartments.	Dimension of car or apartments.		Day or night service.	Mails by express trains.	
			Length.	Width.		Number of round trips over whole route.	Number of round trips per week over portion of route, and between what points.
8,736	6, Windsor and White River Junction.	1	21 10	6 6	Day		15, Essex Junction and Burlington.
33,696	6	1	21 3	7 0	Reserve		12, Rutland and Burlington.
15,600	6	1	23 6	7 0	Day		
15,600	6	1	15 9	6 8	Reserve		
14,976	6	1	21 10	6 6	Day		
10,608	6	1	21 3	7 0	Reserve	9	
17,472	6	1	21 3	7 0	Reserve	6	
19,344	6	1	23 9	6 6	Day		
66,144	6, White River Junction and Newport.	1	13 0	7 0	do		
23,712	6	1	10 8	5 5	do		
43,680	12	1	13 10	7 0	Reserve		
37,824	6, Rutland and North Bennington.	2	13 0	7 0	do		
34,944	6	1	11 6	6 4	do		6, White River and Newport.
16,224	6, Boston and Lawrence.	2	11 5	6 5	Day	6	6, Newport and Wells River.
21,216	12	1	12 0	7 0	Reserve		
31,200	6	1	12 0	7 0	Reserve	6	
21,840	6, Boston and Ayer	1	8 8	6 9	Day		9, North Bennington and Rutland.
14,352	6	1	7 0	6 7	Reserve		12, North Bennington and Bennington.
30,576	6	1	18 0	6 8	Day		
87,360	12, Boston and East Thompson.	2	18 0	6 6	Day		
54,912	12	3	20 0	7 7	do		
27,456	6	1	16 9	6 8	do		
21,840	6, Pratt's Junction and Fitchburgh.	1	12 0	7 0	Reserve		
26,208	12	1	8 7	6 9	Day		
17,472	6	1	6 0	3 7	Reserve		
39,936	6	1	23 6	7 0	Day		
46,176	6	1	28 0	6 6	do		
		1	23 0	6 9	do		
		1	23 6	7 0	Reserve		
		1	15 9	6 8	do		
		1	18 0	6 9	Day		
		1	10 3	6 5	do	6	3, Palmer to Ware.
		1	12 7	6 9	do		6, Boston to East Thompson; 3, Boston to Norwood.
		1	16 0	6 6	Reserve		3, Boston to Franklin City; 3, Blackstone to East Thompson.
		1	14 8	6 0	Day	27	6, Southbridge to East Thompson.
		1	55 0	8 9	do		3, Boston and Mansfield.
		1	55 0	8 9	do		3, Mansfield to Providence; 3, Attleboro' to Providence.
		1	27 7	8 7½	do		9, Pratt's Junction to Fitchburgh.
		1	19 0	6 6	do		
		1	12 0	6 10	do		9, Mansfield to Foxboro'.
		1	10 6	6 9	Reserve		
		1	12 0	6 10	Day		
		1	10 6	6 9	Reserve	6	
		1	23 6	7 0	Day		
		1	28 0	6 6	do		
		1	23 0	6 9	do	12	3, Fitchburgh to Keene.
		1	23 6	7 0	Reserve		
		1	15 9	6 8	do		
		1	18 0	6 9	Day	6	

L.—Route-agent and mail-route messenger service in the

Number of route.	Contract designation, terminus of route.	Corporate title of company.	Railway mail service designation.	Agent or mail-route messenger service.	Distance.
					<i>Miles.</i>
3037	Winchendon, Worcester.	Boston, Barre and Gardiner Railroad.	Peterboro and Worcester.	R. A.	37
3038	Winchendon, Peterboro.	.....do	Winchendon and Worcester.	R. A.	37
3061	Palmer, Miller's Falls.	Central Vermont Railroad ..	Peterboro and Worcester.	R. A.	16
3062	Miller's Falls, Brattleboro.	.....do	Brattleboro and Palmer	R. A.	35
			Newport and Springfield.	R. A.	21
3063	Manchester, Lawrence	Manchester and Lawrence Railroad.		R. A.	13
3066	Worcester, Nashua ...	Worcester and Nashua Railroad.	Lawrence and Clermont	R. A.	26
3067	Springfield, South Vernon Junction.	Connecticut River Railroad.	Nashua and Worcester..	R. A.	46
			Portland and Worcester	R. A.	46
			Newp't and Springfield	R. A.	50
			White River Junction and Springfield.	R. A.	50
3068	Springfield, Athol	Springfield, Athol and Northeastern Railroad.	Athol and Springfield...	R. A.	45
4001	Providence, Worcester	Providence and Worcester Railroad.	Worcester and Providence.	R. A.	43
4002	Providence, New London.	Stonington and Providence Railroad.	Providence and New London.	R. A.	64
5001	Norwich, Worcester ..	New York and New England Railroad.	Boston, Prov., and N. Y Worcester and Norwich	R. P. O.	64
5002	E. Thompson, Willimantic.	.....do		R. A.	59
5004	New Haven, New London.	Shore Line Division New York, New Haven and Hartford Railroad.	Boston and Willimantic	R. A.	33
5005	New Haven, Springfield.	.....do	New London and New Haven.	R. A.	51
5006	New Haven, New York.	New York, New Haven, and Hartford Railroad.	Boston, Prov., and N. Y Springfield and New York.	R. P. O.	51
		.....do		R. A.	64
5007	Waterbury, Providence.	Hartford, Providence and Fishkill Railroad.	New Haven and N. Y..	R. A.	76
			Springfield and N. Y. ...	R. A.	76
			Boston, Prov., and N. Y	R. P. O.	76
			Providence and Waterbury.	R. A.	122
5009	New London, Palmer ..	New London Division and Northern of Central Vermont Railroad.	Palmer and New London.	R. A.	65

United States on the 30th of June, 1878—Continued.

Annual miles of service.	Number of round trips per week over whole or portion of route.	Number of cars or apartments.	Dimension of cars or apartments.		Day or night service.	Mails by express trains.	
			Length.	Width.		Number of round trips over whole route.	Number of round trips per week over portion of route, and between what points.
			<i>Ft. in.</i>	<i>Ft. in.</i>			
23,088	6	1	13 10	3 0	Reserve		
		1	8 4	6 2	Day		
23,088	6	1	10 0	7 6	do		
9,984	6	2	8 0	5 6	do		
		1	14 0	3 0	Reserve		
21,840	6	1	10 6	6 6	Day		6, Palmer to Amherst.
		3	10 4	6 6	Reserve		
13,104	6					9	3, West Northfield to Brattleboro.
8,112	6, South Vernon Junction and Brattleboro.	1	22 9	7 1	Day		6, South Vernon Junction to Brattleboro.
		1	21 3	7 0	do		
		2	21 10	6 6	Reserve		
16,224	6	3	12 0	7 0	Day	6	
		1	12 0	7 6	Reserve		
		2	10 1	6 9	do		
57,408	12	1	12 0	6 6	Day	3	6, Sterling Junction to Worcester.
28,704	6	1	10 8	7 0	do		3, Ayer to Worcester.
31,200	6	1	11 6	6 4	do		
31,200	6	1	13 0	7 0	do		
		1	11 5	6 5	do		24, Springfield to Chicopee.
		1	22 9	7 0	do		9, Springfield to Northampton.
		1	21 3	7 0	do		9, Springfield to Holyoke.
		1	21 10	6 6	do		
		1	21 8	6 6	Reserve		
		2	20 3	6 4	Day		
29,952	6	1	11 6	6 9	do		3, Bonds Village to Springfield.
		1	11 8	6 4	Reserve		
53,664	12	1	13 2	6 4	Day		3, Providence to Blackstone.
		1	14 5	6 4	do	9	6, Woonsocket Falls to Providence.
		1	14 0	7 0	Reserve		
39,336	6	1	16 0	6 9	Day	9	3, Wessley and Stonington.
		1	12 7	5 0	Reserve		3, New London and Wessley.
39,936	6	2	55 0	8 6	Day		
36,816	6	1	19 2	7 0	do		3, Norwich to Putnam.
		1	10 0	6 2	Reserve	6	9, Putnam to Worcester.
41,184	12	2	19 7	6 9	Day		
		1	16 0	6 6	Reserve	9	3, Willimantic to Putnam.
63,648	12	1	25 2	8 9	Day		
		1	28 0	8 9	do	12	
		1	12 0	6 0	Reserve		
		1	30 8	8 6	Day		
31,824	6	2	55 0	8 6	do		
39,936	6	1	45 8	8 8	do	12	3, Thompsonville to New Haven; 3, Wallingford to Meriden.
47,424	6	1	14 10	6 0	do	21	3, Bridgeport to New Haven.
		1	35 10	8 10	do		
47,424	6	1	12 0	6 0	Reserve		
47,424	6	2	55 0	8 6	Day		
76,128	6	2	14 0	6 6	do		9, Waterbury to Hartford; 12, Providence to Hartford.
		2	14 0	6 6	Reserve		3, Willimantic to Hartford; 3, Moosup to Providence.
		1	13 9	6 6	Day		3, Burnside to Hartford; 3, Plainville to Providence.
40,360	6	1	11 4	6 6	do	9	6, Norwich to New London.
		1	10 8	6 4	Reserve		3, New London to Willimantic.
		1	11 5	6 5	Day		
		1	9 9	6 5	Reserve		

L.—Route-agent and mail-route messenger service in the

Number of route.	Contract designation, termini of route.	Corporate title of company.	Railway mail service designation.	Agent or mail-route messenger service.	Distance.
5010	New Haven, Williamsburgh.	New Haven and Northampton Railroad.	Williamsburgh and New Haven.	R. A. . . .	Miles. 84
	Branch, New Hartford, Farmington.	.....do	New Haven and Farmington.	M. R. M.	14
5011	Bridgeport, West Winsted.	Naugatuck Railroad	West Winsted and Bridgeport.	R. A. . . .	61
5012	Bridgeport, Pittsfield.	Housatonic Railroad	Pittsfield and Bridgeport.	R. A. . . .	110
5013	Danbury, South Norwalk.	Danbury and Norwalk Railroad.	Danbury and South Norwalk.	R. A. . . .	23
5014	New Haven, Willimantic.	New Hampshire, Willimantic and Middletown R. R.	Willimantic and New Haven.	R. A. . . .	54
5015	Hartford, Saybrook Point.	Connecticut Valley Railroad.	Springfield and Saybrook Point.	R. A. . . .	43
5016	Springfield, Hartford.	Connecticut Central Railroad	.....do .....	.....	30
5018	Hartford, Millerton.	Connecticut Western Railroad.	Hartford and Millerton	R. A. . . .	69
5019	Litchfield, Hawleyville	Shepanag Railroad	Litchfield and Bethel	M. R. M.	32
Br'ch.	Bethel, Hawleyville.	Danbury and Norwalk R. R.	.....do	M. R. M.	6
6001	New York, Dunkirk.	New York, Lake Erie and Western Railroad.	Port Jervis and New York.	R. A. . . .	87
6002	Suffern, Piermont.	Piermont br'ch N. Y. Lake Erie and Western R. R.	Monsey and New York.	R. A. . . .	40
7017	New York, Nyack.	Northern Railroad of N. J.			
6005	Rochester, Avon.	Danville and Mount Morris branch N. Y. Lake Erie and Western Railroad.	Danville and Buffalo.	R. A. . . .	96
6006	Avon, Danville.	Rochester and Batavia branch N. Y. Lake Erie and Western Railroad.	Rochester and Corning	R. A. . . .	94
6007	Attica, Corning.	Buffalo division N. Y. Lake Erie and Western R. R.	Hornellsville and Buffalo.	R. A. . . .	71
6008	Buffalo, Hornellsville.				
6009	Goshen, Montgomery	Montgomery branches Erie and Walkill Valley R. R.	Rondout and Goshen.	R. A. . . .	53
6083	Montgomery, Kingston.		New York and Syracuse	R. P. O.	290
6011	New York, Albany.	New York Central and Hudson River Railroad.	Albany and Rochester	R. P. O.	228
6017	Buffalo, Albany.	.....do			
6013	Syracuse, Rochester.	Auburn br'ch N. Y. Central and Hudson River R. R.	Syracuse, Auburn and Rochester.	R. A. . . .	103
6014	Canandaigua, Tonawanda.	New York Central and Hudson River Railroad.	Canandaigua and Batavia.	R. A. . . .	50
6018	Rochester, Niagara Falls.	.....do	Batavia and Tonawanda.	R. A. . . .	36
6019	Dunkirk, Titusville.	Dunkirk, Allegheny Valley and Pittsburgh Railroad.	Rochester and Niagara Falls.	R. A. . . .	77
			Dunkirk and Titusville.	R. A. . . .	91
6022	New York, Chatham Village.	N. York and Harlem R. R.	Chatham Village and New York.	R. A. . . .	28
			Pawling and N. York.	R. A. . . .	64

United States on the 30th of June, 1878—Continued.

Annual miles of service.	Number of round trips per week over whole or portion of route.	Number of cars or apartments.	Dimension of car or apartments.		Day or night service.	Number of round trips over whole route.	Mails by express trains.
			Length.	Width.			Number of round trips per week over portion of route, and between what points.
104, 832	12	2	Ft. in. 15 4	Ft. in. 6 9	Day		6, Farmington to New Haven; 3, Northampton to Williamsburgh.
17, 472	12	1	11 6	6 7	do		6, Westfield to Northampton; 3, Plainfield to Farmington.
		1	10 0	6 6	Reserve		6, Collinsville to Farmington.
76, 128	12	1	16 0	5 10	Day		3, Derby to Bridgeport.
		1	16 0	6 4	do		3, Naugatuck to Bridgeport.
		1	11 7	6 2	Reserve		3, Pittsfield to Falls Village.
137, 230	12	2	14 6	6 6	Day		3, Lenox to Pittsfield.
		2	6 6	6 2	do		3, Lenox to Pittsfield.
		1	14 6	5 6	Reserve		
22, 704	12	1	11 2	6 0	Day	12	3, Bethel to South Norwalk.
		1	11 8	5 11	Reserve		
		1	7 10	5 10	do		
33, 696	6	1	9 8	6 6	Day	18	6, New Haven to Middletown.
26, 832	6	1	10 6	6 9	do		3, Hartford to Weathersfield.
12, 720	6	1	11 6	6 9	Reserve		6, Saybrook Point to Saybrook.
		1	7 6	7 0	do		3, Saybrook to Chester.
86, 112	12	2	12 0	6 0	Day		3, Hartford to West Winsted.
		1	12 0	6 0	Reserve		3, Canaan to Millerton.
19, 968	6	1	9 4	6 6	do		
3, 744	6	1	16 6	6 10	Day		
54, 288	6	1	9 2	7 0	do		
24, 960	6	1	5 0	7 0	Reserve	6	
59, 904	6	1	11 5	10 0	Day		6, Avon and Corning; 6, Rochester and Corning.
58, 656	6	1	13 11	9 3	do		6, Avon and Danville.
104, 704	6	1	14 0	9 2	do		6, Attica and Buffalo.
		1	14 0	9 8	Reserve	15	
		1	15 0	8 0	Day		
33, 072	6	1	9 0	7 0	do	3	
635, 100	20, New York to Albany	2	47 4	8 10	do	27	6, Albany and Poughkeepsie; 6, Peekskill to New York.
499, 322	20, Albany to Buffalo	2	47 8	8 10	Night	12	3, Albany to Syracuse; 6, Albany to Utica.
	6, Albany to Rochester	2	44 9	8 9	Reserve		6, Little Falls to Buffalo.
		1	44 10	8 8	do		
142, 272	6	1	18 0	8 9	Day	18	6, Rochester to Canandaigua.
64, 292	6	3	5 9	6 0	do		
31, 200	6	3	5 9	6 0	do		
22, 464	6	1	30 0	8 4	do	18	
42, 048	6	2	12 0	7 0	do		
		1	20 2	8 4	Day and night		6, Dover Plains to Millerton.
17, 472	6 }	1	20 4	8 4	do		30, New York to Fordham.
39, 936	6 }	1	19 10	8 2	Day		6, New York to White Plains.
		1	13 6	8 5	Reserve		

L.—Route-agent and mail-route messenger service in the

Number of route.	Contract designation, termini of route.	Corporate title of company.	Railway mail-service designation.	Agent or mail-route messenger service.	
					Distance.
					Miles.
6024 6067	Eagle Bridge, Rutland. Troy, North Adams ..	Del. and Hudson Canal Co. Troy and Boston Railroad.	Rutland, Salem and Troy.	R. A.	85
6026 6033	Albany, Canada line. West Chazy, Rouse's Point.	Del. and Hudson Canal Co. .....do	Rouse's Point and Al- bany.	R. A.	190
6028	Albany, Binghamton ..	.....do	Albany and Bingham- ton.	R. A.	142
6034 6038	Oswego, Richland... Oswego, Lewiston ..	Rome, Watertown and Og- densburgh Railroad.	Richland and Niagara Falls.	R. A.	122
6036	Rome, Ogdensburgh ..	.....do	Ogdensburgh and Rome	R. A.	142
6037	Syracuse, Lacona ....	.....do	Richland and Syracuse	R. A.	45
6040 6041 6042	Chenango Falls, Nor- wich. Utica, Norwich. Owego, Ithaca	Utica division Delaware, Lackawanna and West- ern Railroad. Cayuga div. Del., Lacka- wanna and Western R. R.	Utica and Binghamton Ithaca and Owego	R. A. M. R. M.	95 33
6045	New York, Greenport.	Long Island Railroad	Greenport and New York.	R. A.	94
6046 6047	Hicksville, Port Jef- ferson. Manorville, Sag Har- bor.	.....do	Port Jefferson and Hicksville. Sag Harbor and Man- orville.	R. A. R. A.	69 35
6048	Oswego, Middletown..	New York and Oswego Mid- land Railroad.	Oswego and Norwich .. Norwich and Middle- town.	R. A. R. A.	100 149
6049	Norwich, Courtland Village.	.....do	Norwich and Courtland	R. A.	47
6053	Rouse's Point, Ogdens- burgh.	Ogdensburgh and Lake Champlain Railroad.	Saint Albans and Og- densburgh.	R. A.	142
6054	Chatham Village, Rut- land.	Harlem Extension Railroad	Bennington and Chat- ham Village.	R. A.	55
6057	Utica, Smith Valley Station.	Utica, Clinton and Bing- hamton Railroad.	Utica and Randallville	R. A.	32
6058	Buffalo, Emporium	Buffalo, New York, and Phil- adelphia Railroad.	Buffalo and Emporium.	R. A.	131
6061 6025	Brocton, Corry..... Irvine, Corry	Buffalo, Corry and Pitts- burgh Railroad. Pittsburgh, Titusville and Buffalo Railroad.	Brocton and Oil City... Canandaigua and El- mira.	R. A. R. A.	90 71
6063 6021	Canandaigua, Elmira } Williamsport, Elmira }	Northern Central Railroad	Elmira and Williams- port.	R. A.	76
6064	Syracuse, Oswego	Delaware, Lackawanna and Western Railroad.	Oswego and Syracuse..	R. A.	35
6065	Syracuse, Binghamton	Syracuse, Binghamton and New York Railroad.	Syracuse and Bingham- ton.	R. A.	80
6071 6072 6077 6073 6074	Syracuse, Earlville ... Ithaca, State line ... Ithaca, Geneva Rondout, Stamford ... Ithaca, Courtland Vil- lage.	Syracuse & Chenango R. R. Geneva, Ithaca, & Sayre R. R. Ulster & Delaware R. R. Utica, Ithaca, & Elmira R. R.	Syracuse and Earlville. Geneva and Sayre Rondout and Stamford. Courtland and Elmira	R. A. R. A. R. A. R. A.	43 76 74 71
6075 6076	Horseheads, Ithaca... Freeville, Scipio .....	.....do	Scipio and Freeville ...	R. A.	37
6079	Poughkeepsie, Miller- ton.	Poughkeepsie, Hartford & Boston Railroad.	Mount Riga and Pough- keepsie.	R. A.	40

United States on the 30th of June, 1878—Continued.

Annual miles of service.	Number of round trips per week over whole or portion of route.	Number of cars or apartments.	Dimension of cars or apartments.		Day or night service.	Mails by express trains.	
			Length.	Width.		Number of round trips over whole route.	Number of round trips per week over portion of route, and between what points.
53,040	6	{ 1 1	12 3 13 3	6 7 6 9	Day do	3	3, Salem to Eagle Bridge.
118,560	6	2	21 0	7 0	Day and night.	6	{ 6, Whitehall to Rutland; 6, Rutland to Albany. 3, Albany to Port Henry; 3, Whitehall to Albany.
83,603	6	2	16 0	9 9	Day	6	6, Albany and Oneonta.
		2	15 6	9 6	Reserve		3, Binghamton to Oneonta.
113,568	6	2	23 6	7 2	Day and night.		{ 12, Richland and Oswego. 3, Wallingford and Charlotte.
88,608	6	1	24 6	7 2	Day	6	
		1	22 10	6 9	Reserve		
98,030	6	2	9 0	7 0	Day	6	6, Watertown and Rome. 3, Syracuse and Liverpool.
59,230	6	{ 1 1	17 7 17 3	7 2 6 7	Day and night. Reserve	6	3, Cassville and Utica.
90,592	6	1	7 9	7 6	Day	6	
		1	6 7	7 4	Reserve		
58,656	6	1	10 6	5 8	Day	6	3, Mineola to Hempstead; 12, Mineola to Locust Valley.
43,056	6	2	12 0	6 6	do		6, Northport to Port Jefferson.
21,840	6	1	12 6	6 0	do	6	3, Hicksville to Huntington.
62,400	6	1	10 9	7 6	do		6, Middletown to Summitville.
92,976	6	1	12 0	7 0	do		3, Sidney Plains to Walton.
		1	13 8	6 7	do		3, East Guilford to Guilford Centre.
		1	14 4	7 2	do		
29,328	6	1	13 10	7 4	do		
83,602	6	2	13 4	6 10	Day and night.		3, Rouse's Point to Ogdensburg.
		1	11 2	7 6	Reserve		
34,320	6	1	12 4	6 1	Day		3, New Lebanon to Chatham Village.
19,968	6	1	15 0	6 11	do	6	
75,504	6	1	11 8	6 2	do		
		1	13 7	6 10	Reserve		3, East Aurora to Buffalo.
56,160	6, Corry to Oil City	{ 2 3 3	13 7 9 0 10 0	6 10 5 0 5 6	Reserve Day Reserve		15, Corry to Oil City.
		1	9 0	5 6	Day		
66,456	9	2	14 6	8 6	do	3	6, Canandaigua to Williamsport.
47,424	6	2	15 6	8 6	do		3, Watkins to Williamsport.
		1	14 8	8 8	Reserve		3, Elmira to Williamsport.
43,680	12	2	14 9	6 9	Day	6	
49,920	6	2	18 3	7 8	do	6	
26,432	6	2	8 0	6 0	do	0	9, Syracuse to Casenovia.
47,424	6	2	11 0	7 0	do		
		1	10 6	7 0	Reserve		
47,176	6	2	12 0	6 10	Day		
		2	10 6	7 0	do		
44,304	6	1	15 6	9 0	do		3, Wilseyville to Ithaca.
16,848	6	1	14 9	8 10	do		3, Freeville to Ithaca.
		1	18 0	9 0	Reserve		
24,960	6	2	7 5	6 10	Day		

L.—Route-agent and mail-route messenger service in the

Number of route.	Contract designation, terminus of route.	Corporate title of company.	Railway mail service designation.	Agent or mail-route messenger service.	Distance.
6081 6098	Fonda, Gloversville } Gloversville, Northville.	Fonda, Johnstown & Gloversville Railroad.	Northville and Fonda..	R. A.	Miles. 36
6034	Athens, Fairhaven	Southern Central Railroad.	Fairhaven and Sayre ..	R. A.	116
6085	Newburgh, Millerton	Newburgh, Dutchess and Connecticut Railroad.	Millerton and Newburgh.	R. A.	59
6087	Utica, Watertown	Utica and Black River R. R.	Watertown and Utica..	R. A.	91
6088	Carthage, Morristown	.....do	Morristown and Carthage.	R. A.	49
6089	Cayuga, Ithaca	Cayuga Lake Railroad	Cayuga and Ithaca ...	R. A.	38
6090	Sodus Point, Gorham Station.	Lake Ontario Southern Railroad.	Sodus Point and Stanley	R. A.	34
6091	Buffalo, Jamestown...	Buffalo & Southwestern R. R.	Buffalo and Jamestown	R. A.	70
6093 6094	New York, Babylon. New York, Patchogue.	South Side Railroad of Long Island. Flushing, North Side and Central Railroad.	Patchogue and New York.	R. A.	54
6095	Saratoga Springs, North Creek.	Adirondack Railroad	North Creek and Saratoga.	R. A.	57
6397	Rhinecliff, Boston Corners.	Rhinebeck and Connecticut Railroad.	Boston Corners and Rhinecliff.	R. A.	35
6102	Rochester, Gainesville	Rochester & State Line R. R.	Rochester and Gainesville.	R. A.	53
7001	New York, Easton....	Central R. R. of New Jersey	New York, Somerville, and Easton.	R. A.	75
7003	Elizabethport, Sea Plain.	.....do	New York and Squan..	R. A.	58
7004	New York, Philadelphia.	Pennsylvania Railroad.....	New York, Trenton, and Philadelphia.	R. A.	90
7005	Camden, Monmouth Junction.	Amboy Division, Pennsylvania Railroad.	New York, Jamesburgh, and Philadelphia.	R. A.	92
7006	Philadelphia, Hightstown.	.....do	Hightstown and Philadelphia.	R. A.	50
7008	Trenton and intersection of the Del. Lac. and Western R. R. }	{ Belvidere Division of the Pennsylvania Railroad.	Belvidere and Philadelphia agent.	{ R. A.	95
7013	New York, Easton.. }	{ Morris and Essex Div. Del. Lack. and Western R. R. }	N. Y., Dover and Easton N. Y. and Hackettstown	R. A. R. A.	85 62
7015	Camden, Atlantic City	Camden and Atlantic R. R.	Phila. and Atlantic City	R. A.	59
7023	Jameburgh, Sea Girt	Freehold and Jameburgh Railroad.	Monmouth Junc. and Squan.	R. A.	32
7025	Waterloo, Franklin Furnace.	Sussex Railroad	Franklin Furnace and Waterloo.	R. A.	24
7026	New York, Pemberton Junction.	New Jersey Southern R. R. }	New York, Whiting and Philadelphia.	{ R. A.	89
7006	Philadelphia, Hightstown.	Cam. and Buel Branch Penn. Railroad.			
7028 8019	New York, Denyville } Binghamton, New Hampton.	Delaware, Lacawanna and Western R. R.	Binghamton, Scranton and New York.	R. A.	210

United States on the 30th of June, 1878—Continued.

Annual miles of service.	Number of round trips per week over whole or portion of route.	Number of cars or apartments.	Dimension of cars or apartments.		Day or night service.	Mails by express trains.	
			Length.	Width.		Number of round trips over whole route.	Number of round trips per week over portion of route, and between what points.
			<i>Ft. in.</i>	<i>Ft. in.</i>			
44, 928	12.....	1	8 0	6 0	Day		3, Gloversville to Fonda.
		1	8 0	6 0	Reserve		
72, 384	6.....	2	11 2	6 2	Day		6, Auburn to Sayre.
		1	9 10	6 8	Reserve		
36, 816	6.....	1	7 10	6 4	Day		
		1	9 10	7 0	Reserve		
56, 784	6.....	1	20 0	6 11	Day and night.	6	6, Utica to Carthage.
		2	20 0	6 11	Reserve		
30, 576	6.....	1	13 0	6 6	Day	6	
23, 712	6.....	1	10 4	7 0	do	3	
21, 216	6.....	1	7 4	6 10	do		
43, 660	6.....	1	11 9	6 3	do		6, Buffalo to Gowanda.
		1	30 0	8 0	do		3, Hempstead to New York; 9, New York to Flushing.
33, 696	6.....	1	14 0	6 6	do		3, New York to Garden City; 12, Whitestone to New York.
		1	10 6	8 8	Reserve		12, Great Neck to New York.
35, 568	6.....	1	13 5	5 7	Day		
21, 840	6.....	1	10 4	7 0	do		
33, 072	6.....	2	12 0	7 0	do		6, Rochester to Scottsville.
93, 600	12.....	2	13 3	7 0	do	21	3, Bergen Point to New York.
		1	15 0	7 3	Reserve		
36, 192	6.....	1	12 0	7 0	Day		3, Ocean Beach and New York; 3, Spring Lake and New York; 3, New York & Long Branch.
56, 160	6.....	1	15 3	6 3	do		6, Monmouth Junction to New York.
57, 408	6, Monmouth Junction to Philadelphia.	1	13 8	6 6	do		12, Philadelphia to South Amboy.
		1	8 0	6 0	do		
		1	6 0	6 0	Reserve		6, Philadelphia to Bordentown.
31, 200	6.....	1	8 6	6 6	Day	6	6, Philadelphia to Pemberton Junction; 3, Philadelphia to Mount Holly.
59, 280	6.....	1	11 3	6 3	Day		6, Trenton and Lambertville.
		1	13 3	6 3	Reserve	6	6, Manunka Chunk Junction and Trenton.
		2	12 0	9 0	Day		6, New York to Morristown.
53, 040	6 }	1	12 6	7 0	do		3, New York to Hackensack.
32, 688	6 }	1	15 0	8 0	Reserve		
36, 816	6.....	1	9 2	6 4	Day	6	
		1	9 1	6 3	Reserve		
19, 968	6.....	1	8 4	6 9	Day	6	6, Jamesburgh to Monmouth Junction.
		2	6 6	2 6	do		
22, 464	18, Newton to Waterloo	1	6 6	3 6	Reserve		
		2	8 4	6 10	Day		3, N. Y. to Pemberton Junction; 3, Bricksburgh to New York.
55, 536	6.....	2	7 2	6 10	Reserve		3, N. York to Whiting.
		2	20 0	7 6	Day		6, N. Y. to Boonton; 3, Binghamton and N. Y.
131, 040	6.....	1	18 0	7 6	Reserve		3, N. Y. to Scranton.

L.—Route-agent and mail-route messenger service in the

Number of route.	Contract designation, terminal of route.	Corporate title of company.	Railway mail service designation.	Agent or mail-route messenger service.	Distance.
					Miles.
7029	Whiting, Atoos	New Jersey Southern R. R.	Manchester and } Bridgeton.	R. A.	73
7031	Atoos, Bridgeton	Vineland Railroad	Manchester and Tuckerton.	R. A.	34
7032	Whiting, Long Beach.	Tuckerton Railroad	Middletown, Pompton, and New York.	R. A.	88
7037	New York, Middletown.	New Jersey Midland R. R.	Phila. and Bridgeton.	R. A.	40
7041	Camden, Cape May ...	West Jersey Railroad	Glassborough and Cape May.	R. A.	63
	Branch, Glassborough Bridgeton.	.....do	Phila. and Harrisburgh.	R. A.	109
8001	Philadelphia, Pittsburg.	Pennsylvania Railroad	Pottsville and Phila.	R. A.	93
8002	Phila., Pottsville	Phila. and Reading R. R.	Philadelphia and Westchester.	R. A.	27
8003	Philadelphia, Westchester.	Phila. and Westchester R. R.	Bethlehem and Phila.	R. A.	55
8004	Philadelphia, Bethlehem.	North Pennsylvania R. R.	Philadelphia and Port Deposit.	R. A.	71
8008	Chester, Port Deposit.	Philadelphia and Baltimore Central Railroad.	Easton and Elmira.	R. A.	22
8010	E. Penn. Junc., Waverly.	Lehigh Valley Railroad ...	Easton and Hazleton.	R. A.	74
8017	Easton, Allentown.		Penn. Haven Junction and Mount Carmel.	R. A.	40
8011	Penn. Haven Junc., Mt. Carmel.	.....do	Pottsville to Tamaqua to Herndon.	R. A.	80
8013	Pottsville, Herndon ...	Phila. and Reading R. R.	Williamsport and Port Clinton.	R. A.	131
8014	Port Clinton, Williamsport.	.....do	Hazleton and Sunbury	R. A.	52
8015	Sunbury, Tomhicken.	Pennsylvania Railroad	Scranton and Northumberland.	R. A.	80
8017	Scranton, Northumberland.	Delaware, Lackawana and Western Railroad.	Carbondale and Scranton.	R. A.	37
8018	Scranton, Carbondale.	Del. and Hudson Canal Co.	Elmira and Bloomsburgh.	R. A.	45
8020	Elmira, Bloomsburgh.	Tioga and Elmira State Line Railroad.	Saint Mary's and Erie Lock Haven and Saint Mary's.	R. A.	419
8922	Sunbury, Erie.	Philadelphia and Erie Div. Pennsylvania Railroad.	Lock Haven and Harrisburgh.		
10002	Baltimore, Sunbury.	Northern Central Railroad	Harrisburgh and Baltimore.		
8024	Alton, Carrollton ...	New York, Lake Erie and Western Railroad.	Carrollton and Alton.	R. A.	25
8025	Irvine, Oil City	Pittsburgh, Titnville and Buffalo Railroad.	Irvine and Oil City.	R. A.	71
8030	Harrisburgh, Martinsburgh.	Cumberland Valley Railroad	Harrisburgh and Martinsburgh.	R. A.	94
8031	Columbia, Sinking Springs.	Philadelphia and Reading Railroad.	Reading and Columbia.	R. A.	46
8033	Columbia, Frederick.	Frederick Division, Pennsylvania Railroad.	Columbia and Frederick.	R. A.	69
8034	Hanover Junction, Gettysburgh.	Hanover and Gettysburgh Railroad.	Hanover Junction and Gettysburgh.	R. A.	30

United States on the 30th of June, 1874—Continued.

Annual miles of service.	Number of round trips per week over whole or portion of route.	Number of cars or apartments.	Dimension of cars or apartments.		Day or night service.	Mails by express trains.	
			Length.	Width.		Number of round trips over whole route.	Number of round trips per week over portion of route, and between what points.
			<i>Ft. in.</i>	<i>Ft. in.</i>			
45,512	6.....	1	7 6	5 7	Day.....		
42,432	12.....	1	8 0	6 11	do.....		
		1	11 0	5 0	Reserve.....		
54,912	6.....	3	14 0	6 8	Day.....		3, Hawthorne to Bloomingdale.
		1	8 0	6 3	Reserve.....		
		1	18 0	6 8	Day.....		
24,960	6.....	1	9 2	8 2	Day.....	6	
		1	12 10	8 0	Reserve.....		
39,312	6.....	1	11 0	8 4	Day.....		
		1	8 0	6 6	do.....		
		1	7 6	6 6	Reserve.....		
68,016	6.....	3	15 0	8 8	Day.....		
52,032	6.....	3	15 3	8 7	do.....	6	
16,848	6.....	1	8 6	5 10	do.....	9	
		1	10 3	5 4	do.....		6, Baltimore Junction to Westchester.
34,320	6.....	1	11 0	8 6	do.....	28	12, Philadelphia and Lansdale; 12, Philadelphia and Hartsville.
22,608	12, Lamokin Junction to Port Deposit.	1	9 6	6 6	do.....		
		1	9 4	3 3	Reserve.....		
		4	22 0	8 6	Day.....	7	3, Easton to Allentown.
		2	10 0	6 0	do.....	6	6, Easton to Catasauqua; 3, Easton to Mauch Chunk.
139,152	6 }	2	14 0	8 4	do.....		3, Easton to Bethlehem.
92,352	12 }		15 0	6 0	Reserve.....		
			8 0	5 0	do.....		
24,960	6.....	1	9 6	6 0	Day.....		6, Shenandoah to Penn Haven.
		1	12 0	5 7	Reserve.....		6, Mahanoy to Penn Haven.
49,920	6, Pottsville to Herndon	1	6 5	6 9	Day and night		
	6, Pottsville to Shamokin.	1	8 0	7 1	do.....		
		1	11 7	8 8	do.....		
		1	8 2	6 0	Reserve.....		
75,504	6.....	2	9 6	8 7	Day.....		6, Port Clinton to Tamaqua.
		1	5 3	6 8	Reserve.....		
32,448	6.....	1	7 4	6 9	Day.....		
49,920	6.....	1	11 2	6 8	do.....	12	
		1	9 3	6 5	Reserve.....		12, Scranton to Nanticoke
46,176	12.....	1	8 10	6 6	Day.....	6	
		1	8 9	6 7	Reserve.....		
22,020	6.....	1	14 3	7 0	Day.....	6	
		1	10 2	6 3	Reserve.....		
	6.....	5	10 0	8 0	Day.....		6, Erie to Warren.
	6.....	3	15 0	8 4	do.....		6, Williamsport to Look Haven.
259,584	6.....	2	14 9	8 7	Reserve.....	6	6, Williamsport to Harrisburgh.
	6.....	1	10 0	7 4	do.....	7	3, Sunbury to Lock
	6.....	1	14 11	8 7	do.....		
15,600	6, Carrollton to Custer City.	1	16 0	8 0	Day.....		
45,552	6.....	2	12 0	6 0	Day.....	6	
52,656	6.....	1	14 0	8 4	do.....		6, Harrisburgh to Chambersburgh.
		1	8 4	8 2	Reserve.....		6, Harrisburgh to Green castle.
24,704	6.....	1	6 5	6 0	Day.....	12	
		1	7 4	6 5	do.....		
43,056	6.....	1	11 0	8 0	do.....		6, Columbia to Hanover.
37,440	12.....	2	11 10	6 0	do.....	3	6, Berlin Junction to Hanover.

L.—Route-agent and mail-route messenger service in the

Number of route.	Contract designation, termini of route.	Corporate title of company.	Railway mail service designation.	Agent or mail-route messenger service.	Distance.
8035	Huntingdon, Mount Dallas Station.	Huntingdon and Broad Top Railroad.	Huntingdon and Cumberland.	R. A.	78
8074	Mount Dallas Station, New Bridgeport.				
8036	Tyrone, Kirwinville.	Pennsylvania Railroad.....	Clearfield and Tyrone.	R. A.	41
8039	Tyrone, Lock Haven.	do	Lock Haven and Tyrone.	R. A.	33
8040	Blairsville, Allegheny.	do	Blairsville and Pittsburgh.	R. A.	64
8041	Washington, Wheeling.	West Pennsylvania Branch Baltimore and Ohio Railroad.	Washington and Wheeling.	R. A.	32
8042	Pittsburgh, Oil City.	Allegheny Valley Railroad.	Oil City and Pittsburgh.	R. A.	132
8044	Meadville, Oil City.	Atlantic and Great Western Railroad.	Meadville and Oil City.	R. A.	72
8045	Miles' Grove, New Castle.	Erie and Pittsburgh Railroad.	Erie and Pittsburgh.	R. A.	167
8029	New Castle, Homewood.	New Castle and Beaver Valley Railroad.			
	Branch, Pittsburgh, Cressline.	Pittsburgh, Fort Wayne and Chicago Railroad.			
8052	Greenville, Hilliard.	Shenango and Allegheny Railroad.	Greenville and Hilliard.	R. A.	47
8046	Oil City, Ashtabula.	Lake Shore and Michigan Southern Railroad.	Oil City and Ashtabula.	M. R. M.	57
8054	Freeport, Butler.	West Pennsylvania Division Pennsylvania Railroad.	Butler and Freeport.	M. R. M.	21
8055	Wilmington, Reading.	Wilmington and Reading Railroad.	Reading and Wilmington.	M. R. M.	72
8056	Pittsburgh, Washington.	Chartiers Division Pittsburgh, Cincinnati and Saint Louis Railroad.	Pittsburgh and Washington.	M. R. M.	31
8057	Perkiomen Junction, Emaus.	Philadelphia and Reading Railroad.	Allentown and Pawling.	M. R. M.	44
8060	Lebanon, Tower City.	do	Tower City and Lebanon.	M. R. M.	44
8061	Towanda, Bernice.	State Line and Sullivan Railroad.	Towanda and Bernice.	M. R. M.	29
8064	Carbondale, Susquehanna Depot.	New York, Lake Erie and Western Railroad.	Nineveh and Carbondale.	M. R. M.	60
8031	Nineveh Junction, Jefferson Junction.	Delaware and Hudson Canal Company's Railroad.			
8065	Lawrenceville, Elkland.	Corning, Cawanesque and Antrim Railroad.	Lawrenceville and Elkland.	M. R. M.	15
8066	Corning, Antrim.	do	Geneva and Wellboro'.	M. R. M.	101
8067	Lewisburgh, Spring Mills.	Pennsylvania Railroad.....	Lewisburgh and Laurelton.	M. R. M.	42
8071	Marion Junction, Richmond Furnace.	Southern Pennsylvania Branch, Cumberland Valley Railroad.	Chambersburgh and Richmond Furnace.	M. R. M.	25
8075	Allentown, Harrisburgh.	Philadelphia and Reading Railroad.	Allentown and Harrisburgh.	M. R. M.	88
8078	Red Bank Furnace, Driftwood.	Allegheny Valley Railroad.	Driftwood and Red Bank Furnace.	M. R. M.	119
8080	Tunkhannock, Montrose.	Montrose Railroad.....	Montrose and Tunkhannock.	M. R. M.	2
8081	Pittsburgh, Monongahela City.	Pittsburgh, Virginia and Charleston Railroad.	Pittsburgh and Monongahela City.	M. R. M.	31
8085	Pomeroy, Delaware City.	Pennsylvania Railroad.....	Pomeroy and Delaware City.	M. R. M.	37
8086	Pollock, Butler.	Parker and Karna City Railroad.	Pollock and Butler.	M. R. M.	45
8091	Reading, Slatington.	Philadelphia and Reading Railroad.	Slatington and Reading.	M. R. M.	43
8093	Larabee, Clermont.	McKean and Buffalo Railroad.	Larabee and Clermont.	M. R. M.	27

United States on the 30th of June, 1878—Continued.

Annual miles of service.	Number of round trips per week over whole or portion of route.	Number of cars or apartments.	Dimension of cars or apartments.		Day or night service.	Mails by express trains.	
			Length.	Width.		Number of round trips over whole route.	Number of round trips per week over portion of route, and between what points.
			Ft. in.	Ft. in.			
47, 424	{ 6, Huntingdon to Hyndman.	2	8 10	6 8	Day		{ 6, Huntingdon to Bedford.
25, 584	6.	1	11 1	8 6	do		
		1	11 0	8 1	do		
34, 320	6.	1	11 0	8 2	do		6, Lock Haven to Bellefonte.
39, 936	6, Branch Junction to Allegheny.	1	11 4	8 7	do		
		1	11 4	8 4	Reserve		
19, 968	6.	1	9 0	8 2	Day		
82, 368	6.	1	16 0	8 4	do	12	
		1	15 0	8 4	do		
44, 928	6.	1	18 0	6 6	do	6	
		2	12 0	9 0	do		
92, 352	6.	1	12 9	9 0	Reserve		
		1	12 3	9 0	do	6	
29, 328	6.	1	11 3	6 10	Day		6, Greenville to Mercer.
		1	13 0	7 0	do		
54, 288	6.	2	18 0	8 6	do		
26, 208	12.	1	6 2	8 6	do		
44, 928	6.	1	7 8	6 10	do		
		2	7 6	6 10	Reserve		
38, 688	12.	1	10 2	8 10	Day		
27, 456	6.	1	6 0	3 8	do		6, Perkiomen Junction to Collegeville.
		1	10 6	3 7	do		
		1	11 2	3 10	do		
27, 456	6.	1	6 6	3 6	do		6, Tremont to Lebanon.
		1	6 6	6 6	do		3, Pine Grove to Tremont.
18, 096	6.	1	6 0	8 0	do		
37, 440	6.	1	6 9	6 2	do		
		1	9 0	6 6	Reserve		
9, 360	6.	1	10 11	7 5	Day		
		1	10 10	7 0	do		6, Corning to Wellsboro'.
63, 024	6.	1	11 10	6 6	do		3, Corning to Lawrenceville.
26, 208	6.	1	6 10	8 6	do		6, Lewisburgh to Mifflinburg.
15, 600	6.	1	7 7	8 1	do		6, Chambersburgh to South Pennsylvania Junction.
56, 160	6.	2	11 3	8 6	do	24	
63, 640	6.	1	14 0	8 6	do		6, Red Bank Furnace to Reynoldsville.
		1	14 3	8 8	do		
17, 472	6.	1	4 9	6 5	do		
19, 344	6.	2	11 0	8 4	do	6	
		1	10 11	8 5	Reserve		
23, 712	6.	1	7 6	6 5	Day		3, Pomeroy to Chatham.
21, 840	6.	1	9 0	4 6	do		
	6, Pollock & Barnhardt's Mills.	1	8 0	5 1	do	6	
		1	8 0	4 8	Reserve		
26, 832	6.	1	6 8	5 1	Day		
14, 352	6.	1	8 7	6 8	do		

L.—Route-agent and mail-route messenger service

Number of route.	Contract designation, terminal of route.	Corporate title of company.	Railway mail service designation.	Agent or mail-route messenger service.	Distance. Miles.
8094	York, Delta	Peachbottom Railroad	York and Delta	M. R. M.	35
8098	New Castle, Stoneboro'	New Castle and Franklin Railroad.	Stoneboro' and New Castle.	M. R. M.	36
8107	Southwest Junction, Uniontown.	Southwest Pennsylvania Railroad.	Greensburgh and Oliphant Furnace.	R. A.	40
8108	Lewistown Junction, Selin's Grove Junction	Lewistown Division, Pennsylvania Railroad.	Saubury and Lewistown	R. A.	54
9501	Wilmington, Delmar	Philadelphia, Wilmington and Delaware Railroad. Eastern Shore Railroad ..	Philadelphia and Crissfield.	R. A.	135
9502	Delmar, Crissfield ..				
9503	Clayton, Easton	Maryland and Delaware Railroad.	Clayton and Easton ...	R. A.	44
9504	Harrington, Lewes...	Junction and Breakwater Railroad.	Harrington and Lewes..	R. A.	40
9505	Wilmington, Landensburgh.	Wilmington and Western Railroad.	Wilmington and Landensburgh.	M. R. M.	20
9506	Georgetown, Selbyville.	Worcester and Breakwater, and Frankford Railroad.	Georgetown and Franklin City.	R. A.	54
10016	Selbyville, Franklin City.				
10001	Baltimore, Philadelphia.	Philadelphia, Wilmington and Baltimore Railroad.	Philadelphia and Baltimore.	R. A.	98
10008	Cambridge, Seaford ...	Dorchester and Delaware Railroad.	Seaford and Cambridge	R. A.	33
10009	Salisbury, Ocean City	Wicomico and Pocomoke Railroad.	Ocean City and Salisbury.	R. A.	30
10010	Townsend, Centreville	Queen Anne and Kent Railroad.	Townsend and Centreville.	R. A.	36
10012	Clayton, Chestertown	Kent County Railroad	Clayton and Chestertown.	R. A.	34
8064	Cumberland, Pittsburgh.	Pittsburgh Division, Baltimore and Ohio Railroad.	Cumberland and Pittsburgh.	R. A.	148
10003	Grafton, Wheeling ..				
10005	Wewerton, Hagerstown				
10006	Baltimore, Williamsport.	Western Maryland Railroad.	Baltimore and Williamsport.	R. A.	90
10007	Annapolis, Annapolis Junction.	Annapolis and Elk Ridge Railroad.	Annapolis and Annapolis Junction.	R. A.	21
10011	Cumberland, Piedmont.	Cumberland and Pennsylvania Railroad.	Cumberland and Piedmont.	M. R. M.	33
10013	Bay View Junction, Washington.	Baltimore and Potomac Railroad.	Baltimore and Washington.	M. R. M.	46
10014	Bowie, Pope's Creek ..	.....do	Bowie and Pope's Creek	R. A.	48
10017	Saint Denis, Point of Rocks.	Baltimore and Ohio Railroad.	Baltimore and Harper's Ferry.	R. A.	81
11005	Richmond, Huntingdon.	Chesapeake and Ohio Railroad.	Richmond and Covington.	R. A.	205
11006	Richmond, Danville ..				
11003	Manassas, Strasburgh	Manassas Division, Washington City, Virginia Midland and Great Southern Railroad.	Alexandria and Strasburgh.	R. A.	140
11004	Alexandria, Round Hill	Washington and Ohio Railroad.	Alexandria and Round Hill.	R. A.	90
11007	Richmond, West Point	Richmond, York River and Chesapeake Railroad.	West Point and Richmond.	R. A.	52
11011	Petersburgh, Norfolk	Atlantic, Mississippi and Ohio Railroad.	Norfolk and Lynchburgh.	R. A.	38
11012	Petersburgh, Lynchburgh.				
11015	Portsmouth, Weldon	Seaboard and Roanoke	Norfolk and Raleigh	R. A.	79
11016	Lynchburgh, Danville.	Washington City, Virginia Midland and Great Southern Railroad.	Lynchburgh and Danville.	R. A.	66
	Brauch, Owl Run, Warrenton.				
			Warrenton Junction and Warrenton.	M. R. M.	9

in the United States on the 30th of June, 1878—Continued.

Annual miles of service.	Number of round trips per week over whole or portion of route.	Number of cars or apartments.	Dimension of cars or apartments.		Day or night service.	Mails by express trains.	
			Length.	Width.		Number of round trips over whole route.	Number of round trips per week over portion of route, and between what points.
21,840	6.....	1	<i>Ft. in.</i> 8 10	<i>Ft. in.</i> 7 0	Day	3, Neshannock Falls to New Castle. 6, Greensburgh to Uniontown. 9, Selina Grove Junction to Selina Grove.
22,464	6.....	1	13 8	7 4	Reserve .....	.....
24,960	6.....	1	8 8	5 2	Day .....	.....
33,696	6.....	1	7 9	8 3	do .....	.....
44,240	6.....	1	6 7	6 0	do .....	.....
27,456	6.....	1	18 6	6 8	Day .....	.....
24,960	6.....	1	25 0	8 0	do .....	.....
12,480	6.....	1	22 6	7 10	Reserve .....	.....
33,696	6.....	1	22 6	8 4	do .....	.....
61,152	6.....	1	10 0	6 0	Day .....	.....
20,592	6.....	1	10 0	7 0	do	12, Philadelphia to Wilmington; 12, Philadelphia to Lamokin.
18,720	6, Salisbury to Berlin	1	6 6	6 10	do .....	.....
22,464	6.....	1	6 6	6 10	Reserve .....	.....
21,216	6.....	1	13 8	8 2	Day .....	.....
92,352	6.....	2	24 0	8 6	do .....	.....
61,776	6.....	1	11 8	8 7	do .....	.....
29,952	6.....	1	9 1	8 7	do .....	.....
56,160	6.....	1	20 0	6 4	do .....	.....
13,104	6.....	1	8 9	6 0	do .....	.....
20,592	6.....	1	9 0	8 0	do	6	
29,704	6.....	1	10 0	4 0	do	6	
29,952	6.....	2	17 0	8 7	do	6	
50,544	6.....	2	8 6	8 0	do	6	
127,920	6.....	2	11 0	8 2	do	6	6, Odenton to Annapolis, 6, Washington to Bowie. 3, Baltimore and Ellicott City.
157,680	6.....	2	8 0	6 0	do .....	.....
101,200	6.....	1	10 2	6 8	do	14	
56,160	6.....	4	14 6	8 6	do	6	
32,448	6.....	1	9 4	8 5	do .....	.....
23,712	6.....	2	14 0	8 4	do	6	
128,544	6.....	7	18 0	8 0	Day and night .....	.....
49,296	6.....	6	25 0	8 9	Day	6	
27,984	6.....	2	10 0	8 6	do .....	.....
11,232	6.....	1	11 0	6 2	do	3, Alexandria to Leesburgh.
23,712	6.....	1	10 6	6 9	do .....	.....
128,544	6.....	4	21 0	9 0	do .....	.....
49,296	6.....	1	19 3	7 11	do	6	

L.—Route-agent and mail-route messenger service

Number of route.	Contract designation, termini of route.	Corporate title of company.	Railway mail service designation.	Agent or mail-route messenger service.	Distance.
					Miles.
11103	Fredericksburgh, Orange Court-House.	Potomac, Fredericksburgh and Piedmont Railroad.	Fredericksburgh and Orange Court-House.	R. A.	38
12001	Harper's Ferry, Staunton.	Valley Branch, Baltimore and Ohio Railroad.	Harper's Ferry and Staunton.	R. A.	126
13001	Raleigh, Weldon.....	Raleigh and Gaston Railroad.	Norfolk and Raleigh ..	R. A.	97
13002	Weldon, Wilmington...	Wilmington and Weldon Railroad.	Weldon and Wilmington.	R. A.	163
13003	Wilmington, Charlotte.	Carolina Central Railroad ..	Wilmington and Charlotte.	R. A.	196
13004	Goldsbrough, Greensborough, Charlotte, Greensborough.	Richmond and Danville Railroad.	Goldsbrough and Greensborough.	R. A.	130
			Danville and Charlotte.	R. A.	141
13005	Goldsbrough, Morehead City.	Atlantic and North Carolina Railroad.	Goldsbrough and Beaufort.	R. A.	94
13006	Salisbury, Henry's....	Western North Carolina Railroad.	Salisbury and Henry's	R. A. ..	117
13007	Charlotte, Augusta {	Charlotte, Columbia and Augusta Railroad.	Charlotte and Augusta.	R. A.	196
13008	Charlotte, Shelby ..	Carolina Central Railroad ..	Charlotte and Shelby ..	R. A.	55
13009	Charlotte, Statesville ..	Atlantic, Tennessee and Ohio Railroad.	Statesville and Charlotte.	M. R. M.	49
13010	Raleigh, Hamlet	Raleigh and Augusta Air-line Railroad.	Raleigh and Hamlet ..	R. A.	97
13011	Fayetteville, Egypt Depot.	Western of North Carolina Railroad.	Egypt Depot and Fayetteville.	M. R. M.	44
13012	Greensborough, Salem.	Northwestern North Carolina Railroad.	Greensborough and Salem.	M. R. M.	29
14001	Columbia, Greenville ..	Greenville and Columbia Railroad.	Greenville and Columbia.	R. A.	41
14002	Columbia, Wilmington, N. C.	Wilmington, Columbia and Augusta Railroad.	Wilmington and Columbia.	R. A.	192
14003	Kingville, Augusta Branch, Kingsville, Columbia.	South Carolina Railroad ..	Columbia and Augusta	R. A.	144
	Branch, Branchville, Charleston.	.....do	Charleston and Branchville.	R. A.	63
14004	Charleston, Savannah.	Savannah and Charleston Railroad.	Charleston and Savannah.	R. A.	109
14005	Charleston, Florence ..	Northeastern Railroad.....	Florence and Charleston.	R. A.	103
14006	Florence, Cheraw.....	Cheraw and Darlington Railroad.	Cheraw and Florence ..	R. A.	41
14007	Chester, Dallas	Chester and Lenoir Narrow-Gauge Railroad.	Dallas and Chester.....	R. A.	51
14008	Alston, Spartanburgh Court-House.	Spartanburgh, Union and Columbia Railroad.	Lynn and Alston	R. A.	96
14011	Spartanburgh C. H. and Lynn.	Spartanburgh and Ashville Railroad.			
14009	Anderson C. H., Walhalla.	Greenville and Columbia Railroad.	Belton and Walhalla...	M. R. M.	45
	Branch, Belton, Anderson C. H.				
14010	Port Royal, Augusta..	Port Royal Railroad	Augusta and Port Royal	R. A.	112
15001	Atlanta, Charlotte ...	Atlanta and Charlotte Air-line Railroad.	Charlotte and Atlanta ..	R. A.	266
15003	Atlanta, West Point..	Atlanta and West Point Railroad.	Atlanta and Montgomery.	R. A.	87
15005	Millen, Augusta.....	Central Railroad and Banking Company of Georgia.	Augusta and Macon ...	R. A.	53

in the United States on the 30th of June, 1878—Continued.

Annual miles of service.	Number of round trips per week over whole or portion of route.	Number of cars or apartments.	Dimension of cars or apartments.		Day or night service.	Mails by express trains.	
			Length.	Width.		Number of round trips over whole route.	Number of round trips per week over portion of route, and between what point.
23,712	6	1	<i>Ft. in.</i> 15 7	<i>Ft. in.</i> 6 0	Day		
78,624	6	2	14 10	8 7	do		
60,528	6	5	10 0	8 0	do		
118,990	7	1	23 0	9 0	do	6	
		1	20 0	8 0	do		
		1	22 0	8 9	do		
122,304	6	3	14 0	8 6	Night		
		2	15 0	8 0	Day		
94,900	7	1	14 0	7 10	do		6, Raleigh to Greensborough.
		1	12 0	8 4	do		
		1	25 0	8 11	Day and night	7	
102,930	7	1	25 0	8 6	do		
		2	25 0	9 0	do		
56,656	6	2	9 10	6 8	do		
73,008	6	1	13 2	6 6	Day		
		3	12 6	8 4	do		
	14, Columbia to Augusta	2	19 9	8 6	Day and night		
286,160	7, Charlotte to Augusta.	1	25 4	9 0	do		
		1	18 8	9 0	do		
34,320	6	1	8 9	8 0	Day		
30,576	6	1	9 4	7 8	do		
60,528	6	1	14 0	6 0	Night		
27,456	6	1	10 7	6 0	Day and night		
18,096	6	1	14 0	8 6	Day		
89,856	6	3	12 4	8 2	do		
140,160		3	22 7	8 9	Night		6, Wilmington to Florence.
89,856	6	1	10 5	8 3	Day and night		
		1	9 9	8 0	do	7	
		1	9 6	8 0	do	7	
38,688	6	1	9 11	8 0	do		
78,840	7	2	11 1	8 3	Day	7	
		1	17 0	8 11	do		
		1	21 0	9 0	do		
		1	8 0	9 0	Reserve		
		1	17 0	9 0	do		
64,272	6	2	11 1	8 3	Day	7	
		1	10 1	8 5	do		
		1	11 3	8 4	do		
		1	9 5	8 4	Reserve		
25,584	6	1	13 3	8 5	Day		
31,824	6	1	9 6	6 10	do		
59,904	6	1	7 0	6 6	do		
		1	7 4	6 2	do		
22,080	6	1	11 1	8 3	Day and night		
69,888	6	2	10 6	6 10	Night		
		1	10 6	6 10	Reserve		
194,180	7	2	20 0	9 0	Day	6	
		1	19 2	8 10	do		
		1	17 8	9 0	Reserve		
63,510	7	1	16 2	8 2	Day		
33,072	6	1	16 10	9 2	do	7	

L.—Route-agent and mail-route messenger service in the

Number of route.	Contract designation, termini of route.	Corporate title of company.	Railway mail service designation.	Agent or mail-route messenger service.	Distance.
					<i>Miles.</i>
15007	Union Point, Athens.	Georgia Railroad	Athens and Union Point	M. R. M.	40
15009	Savannah, Live Oak ..	Atlantic and Gulf Railroad	Savannah and Live Oak	R. A.	179
	Branch, Du Pont, Bainbridge.	.....do	Thomasville and Bainbridge.	M. R. M.	165
15018	Thomasville, Albany ..	.....do	Du Pont and Albany ..	R. A.	
15010	Savannah, Macon	Central Railroad and Banking Company of Georgia. }	Savannah and Millen .	R. A.	192
15011	Macon, Columbus	Southwestern Railroad	Augusta and Macon ..	R. A.	
			Macon and Columbus ..	R. A.	101
15012	Macon, Atlanta.	Central Railroad and Banking Company of Georgia.	Atlanta and Macon	R. A.	104
15013	Macon, Brunswick	Macon and Brunswick Railroad.	Macon and Brunswick ..	R. A.	188
15016	Macon, Eufaula	Southwestern Railroad	Macon and Clayton	R. A.	145
15021	Camak, Macon.	Macon and Augusta Railroad.	Camak and Macon	M. R. M.	81
15022	Griffin, Carrollton	Savannah, Griffin and North Alabama Railroad.	Griffin and Carrollton ..	R. A.	60
15023	Brunswick, Albany	Brunswick and Albany Railroad.	Brunswick and Albany ..	R. A.	173
16001	Fernandina, Cedar Keys.	Atlantic, Gulf and West India Transit Company.	Fernandina and Cedar Keys.	R. A.	154
16002	Jacksonville, Chattahoochee.	Jacksonville, Penacola and Mobile Railroad.	Jacksonville and Chattahoochee.	R. A.	214
16003	Pensacola, Whiting Junction.	Pensacola Railroad	Whiting Junction and Pensacola.	M. R. M.	44
17001	Montgomery, West Point.	Western R. R. of Alabama ..	Atlanta and Montgomery.	R. A.	68
17002	Montgomery, Selma .....	.....do	Montgomery and Selma ..	R. A.	50
17003	Montgomery, Eufaula ..	Montgomery and Eufaula Railroad.	Eufaula and Montgomery.	R. A.	81
17004	Montgomery, Decatur ..	North and South Alabama Railroad.	Decatur and Montgomery.	R. A.	183
17005	Memphis, Stevenson	Memphis and Charleston Railroad	Chattanooga and Memphis.	R. A.	310
19004	Nashville, Chattanooga.	Nashville, Chattanooga and Saint Louis Railroad.			
17006	Marion Junction, Greensborough.	Selma, Marion and Memphis Railroad.	Marion Junction and Greensborough.	M. R. M.	37
17007	Opelika, Columbus	Western R. R. of Alabama ..	Columbus and Opelika ..	R. A.	28
17008	Columbus, Troy	Mobile and Girard Railroad	Columbus and Troy	R. A.	90
17009	Selma, Meridian	Alabama Central Railroad ..	Selma and Meridian	R. A.	108
17010	Selma, Dalton	Selma, Rome and Dalton Railroad.	Dalton and Selma	R. A.	237
17012	Mobile, Montgomery	Mobile and Montgomery Railroad.	Montgomery and Mobile.	R. A.	179
17013	Mobile, New Orleans	New Orleans and Mobile Railroad.	Mobile and New Orleans.	R. A.	140
17015	Chattanooga, Meridian ..	Alabama and Great Southern Railroad.	Chattanooga and Meridian.	R. A.	295
17016	Opelika, Goodwater	Savannah and Memphis Railroad.	Opelika and Goodwater ..	R. A.	60
17017	Selma, Pine Apple	Selma and Gulf Railroad	Selma and Pine Apple	M. R. M.	43

United States on the 30th of June, 1878—Continued.

Annual miles of service.	Number of round trips per week over whole or portion of route.	Number of cars or apartments.	Dimension of cars or apartments.		Day or night service.	Mails by express trains.	
			Length.	Width.		Number of round trips over whole route.	Number of round trips per week over portion of route, and between what points.
24,960	6	1	Ft. in.	Ft. in.	Day	6	
130,670	7	2	10 8	6 4	Day and night		
			16 10	9 2	do		
			12 0	7 6	do		
120,450	7	2	12 9	8 4	do		
		1	9 2	7 0	do		
		1	16 10	9 2	Reserve		
119,808	6	3	9 2	7 0	Day	7	
		1	9 2	7 0	Reserve		
73,730	7	1	12 5	7 0	Day		
		1	11 8	6 10	do		
64,696	6	2	12 0	6 2	do	7	
117,312	6	3	13 2	6 8	do		7, Macon to Jessup.
105,850	7	1	15 0	8 9	do		
		1	14 8	8 9	do		
		1	15 9	8 3	do		
50,544	6	2	10 8	6 3	do		
37,440	6	1	9 0	6 6	do		
53,976	3	1	9 10	5 10	do		
96,096	6	2	11 0	5 3	do		
		1	10 6	5 6	Reserve		
156,220	7	1	12 0	7 0	Day and night		
		1	10 6	7 0	do		
		2	10 0	6 0	Reserve		
32,120	7	1	8 1	7 4	Night		
64,240	7	1	16 10	8 6	Day		
		2	13 0	7 0	do		
		1	12 4	8 6	do		
36,500	7	2	10 10	7 10	do	6	
		1	12 0	8 0	do		
59,130	7	2	11 0	8 0	Day and night		6, Montgomery to Union Springs.
133,590	7	5	14 6	9 5	Day		
226,300	7	2	24 0	9 0	do	7	
23,088	6	1	8 5	6 6	do		
34,944	19	2	12 5	7 0	do		
		1	8 2	8 1	do		
		1	10 11	6 3	Reserve		
56,160	6	1	11 7	6 5	Day and night		
		1	12 9	6 10	do		
		1	9 10	6 5	Reserve		
78,840	7	2	12 0	7 0	Day and night		
		1	12 4	7 3	Reserve		
173,010	7	3	12 0	7 6	Day	6	
		3	16 6	7 6	Reserve		
130,670	7	3	13 3	8 10	Night	6	
		1	14 2	8 10	Reserve		
204,400	14	4	17 0	7 6	Day and night		
215,350	7	1	10 0	8 0	do		
		1	14 6	6 6	do		
		1	15 7	7 4	do		
		1	12 6	7 3	do		
		1	11 8	8 8	do		
		1	14 6	8 8	Reserve		
37,440	6	2	6 6	6 0	Day		
17,868	4	1	6 9	5 6	do		
		1	12 4	7 3	Reserve		

United States on the 30th of June, 1878—Continued.

Annual miles of service.	Number of round trips per week over whole or portion of route.	Number of cars or apartments.	Dimension of cars or apartments.		Day or night service.	Mails by express trains.	
			Length.	Width.		Number of round trips over whole route.	Number of round trips per week over portion of route, and between what points.
16,060	7.....	3	<i>Ft. in.</i> 15 6	<i>Ft. in.</i> 8 3	Day.....		
73,730	7.....	2	12 6	8 10	do.....		
		1	12 6	8 10	Reserve.....		
102,200	7.....	1	9 0	6 11	Day and night.....		
		1	8 7	8 0	do.....		
		1	8 0	7 3	do.....		
104,390	7.....	3	21 0	9 0	do.....		
140,890	7.....	2	21 6	7 6	do.....		
92,550	7.....	1	21 6	7 6	Reserve.....		
3,112	3.....						Mail carried on locomotive.
20,592	6.....	1	8 0	7 0	Day.....	6	
111,690	7.....	2	20 0	8 0	do.....	7	
24,960	6.....	1	8 0	6 0	do.....		
106,704	6.....	3	12 0	8 6	do.....	6	
64,970	7.....	2	15 0	8 0	do.....	7	
24,336	6.....	1	5 0	4 4	do.....		
24,960	6.....	1	9 10	6 7	do.....		
23,712	6.....	1	8 0	6 6	do.....		
21,840	6.....				do.....		
61,776	6.....	3	12 0	6 0	do.....	6	
43,056	6.....	2	13 0	6 0	do.....	6	
58,656	6.....	3	8 9	6 1	do.....	6	
27,360	6.....	2	14 0	7 4	do.....	6	
47,424	6.....	1	9 0	6 4	do.....		6, Paducah to Troy.
170,820	7.....	3	11 6	7 6	do.....	6	
24,336	6.....	1	14 0	7 4	do.....		
142,350	7.....	3	14 9	9 0	do.....	7	
137,475	13.....	2	10 0	7 3	Day and night.....	14	
99,216	6.....	2	9 6	8 0	do.....		
21,216	6.....		11 6	7 6	Day.....	6	
22,464	6.....		10 0	5 0	do.....		
		1	9 0	6 0	do.....		
21,216	6.....	1	11 6	7 6	do.....		
174,096	6.....	3	24 3	8 11	do.....	7	
137,970	7.....	3	24 3	6 11	do.....	7	
93,600	6.....	5	13 0	9 0	do.....	6	
107,328	6.....	3	13 0	9 0	do.....	6	
19,968	6.....	1	14 8	8 11	do.....		

L.—Route-agent and mail-route messenger service in the

Number of route.	Contract designation, termini of route.	Corporate title of company.	Railway mail service designation.	Agent or mail-route messenger service.	Distance.
21010	Sandusky, Newark ...	Baltimore and Ohio Railroad	Sandusky and Newark	R. A.	Miles. 116
21011	Xenia, Dayton ...	Pittsburgh, Cincinnati and	Xenia and Richmond	R. A.	59
21030	Dayton, Richmond ...	Saint Louis Railroad.	Sandusky and Spring-	R. A.	131
21012	Springfield, Sandusky	Cincinnati Sandusky and	Delaware and Colum-	M. R. M.	25
21013	Columbus, Delaware	Cleveland Railroad.	bua.		
21015	Xenia, Cincinnati (part).	Cincinnati and Indianapolis R. R.			
21020	Dresden, Morrow ...	Pittsburgh, Cincinnati and	Dresden and Cincinnati	R. A.	185
21011	Columbus, Xenia ...	Saint Louis Railroad.			
21017	Xenia Cincinnati ...	do	Columbus and Cincinnati	R. A.	121
21018	Portsmouth, Hamden Junction.	Marietta and Cincinnati Railroad.	Hamden and Portsmouth.	R. A.	56
21019	Branch, Bluff, Naples	Wabash Railroad.	Bluff and Hannibal	R. A.	4
21019	Branch, Clayton, Keokuk.		Clayton and Keokuk	R. A.	44
21020	Fremont, Minster ...	Lake Erie and Louisville Railroad.	Fremont and Saint Mary's.	R. A.	103
21021	Cincinnati, Somerset.	Cincinnati Southern Railroad.	Cincinnati and Chattanooga.	R. A.	153
21022	Dayton, Union City	Dayton and Union Railroad	Union City and Dayton	M. R. M.	48
21023	Dayton, Toledo ...	Dayton and Michigan R. R.			
21026	Cincinnati, Dayton	Cincinnati, Hamilton and Dayton Railroad.	Toledo and Cincinnati	R. A.	203
21026	Cincinnati, Dayton (part).	do			
21024	Hamilton, Indianapolis	Cincinnati, Hamilton and Indianapolis Railroad.	Cincinnati, Hamilton and Indianapolis.	R. A.	121
21025	Hamilton, Richmond.	Cincinnati, Richmond and Chicago Railroad.			
21026	Cincinnati, Hamilton (part).	Cincinnati, Hamilton and Dayton Railroad.	Chicago, Richmond and Cincinnati.	R. A.	297
22009	Chicago, Richmond	Pittsburgh, Cincinnati and Saint Louis Railroad.			
21031	North Bend, Hagerstown.	White Water Valley Railroad.			
22003	Indianapolis, Cincinnati (part).	Indianapolis, Cincinnati and La Fayette Railroad.	Fort Wayne and Cincinnati.	R. A.	196
22020	Fort Wayne, Connersville.	Fort Wayne, Muncie and Cincinnati Railroad.			
21033	Springfield, Columbus	Cincinnati, Sandusky and Cleveland Railroad.	Columbus and Springfield.	M. R. M.	45
21034	Salamanca, Dayton (part).	Atlantic and Great Western Railroad.	Salamanca and Kent	R. A.	92
21037	Niles, New Lisbon	do	Niles and New Lisbon	M. R. M.	34
21048	Newark, Shawnee	Baltimore and Ohio Railroad.	Newark and Shawnee	M. R. M.	44
21040	Marietta, Canal Dover.	Marietta, Pittsburgh and Cleveland Railroad.	Canal Dover and Marietta.	R. A.	100
21041	Lorain, Uhricksville	Cleveland, Tuscarawas and Wheeling Railroad.	Lorain and Uhricksville	R. A.	102
21043	Mansfield, Toledo	Pennsylvania Co. Railroad.	Toledo and Mansfield	R. A.	88
21044	Harbor, Youngstown	do	Ashtabula and New Castle.	R. A.	85
21035	Youngstown, Cross Cut.	Pittsburgh, Fort Wayne and Chicago Railroad.	Painville and Youngstown.	R. A.	60
21046	Painville, Youngstown.	Painville and Youngstown Railroad.			
21047	Chicago Junction, Chicago.	Baltimore and Ohio Railroad	Chicago Junction and Chicago.	R. A.	273
21051	Columbus, Portsmouth	Scioto Valley Railroad	Portsmouth and Columbus.	R. A.	100
21052	Cincinnati, Scott.	Cincinnati and Eastern R. R.	Cincinnati, Batavia and Portsmouth.	R. A.	48
21053	Columbus, Toledo	Columbus and Toledo R. R.	Toledo and Columbus	R. A.	125
21054	Dayton, Muskegon	Dayton and Southeastern Railroad.	Dayton and Jackson	M. R. M.	48
21055	Cleveland, Sharpsville	Atlantic and Great Western Railroad.	Cleveland and Sharpsville.	R. A.	64

United States on the 30th of June, 1878—Continued.

Annual miles of serv- ice.	Number of round trips per week over whole or portion of route.	Number of cars or apartments.	Dimension of cars or apart- ments.		Day or night service.	Mails by express trains.	
			Length.	Width.		Number of round trips over whole route.	Number of round trips per week over portion of route, and between what points.
72,384	6	1	<i>Ft. in.</i> 18 3	<i>Ft. in.</i> 8 6	Day		7, Sandusky to Chicago Junction.
			17 0	6 10	do		
36,816	6	1	19 6	8 6	do	6	
81,744	6	2	14 0	9 0	do	7	
15,600	6	1	10 3	8 9	do	7	
230,880	12	4	14 0	7 0	do		6, Dresden Junction to Cincinnati; 6, Dresden Junction to Washing- ton Court-House. 6, Washington Court- House to Morrow.
75,504	6	1	15 8	8 7	do	6	
34,944	6	1	20 1	8 5	do	6	
		1	14 6	9 6	do	6	
2,496	6	1	12 0	9 10	do	7	
27,456	6	1	12 0	9 10	do	7	
64,272	6	2	12 0	7 0	do		6, Fremont to Lima.
98,592	6	2	15 0	7 6	do		6, Cincinnati to Dan- ville.
29,952	6	1	11 0	7 3	do	6	
126,672	6	2	19 9	7 2	do	7	
		1	17 9	6 4	do	7	
75,501	6	4	10 6	7 2	do	7	
185,328	6	4	13 0	9 0	do	7	
122,304	6	3	12 0	7 8	do		6, Cincinnati to Brook- ville.
22,080	6	1	13 4	6 8	do	6	
57,408	6	6	14 4	7 10	do	7	
21,216	6	2	15 2	7 3	do		
27,456	6	2	12 0	8 6	do	6	
62,400	6	1	8 2	6 11	do		
63,648	6	2	14 0	7 9	do		6, Grafton and Massillon.
54,912	6	2	24 3	8 11	do	6	
53,040	6	2	24 3	6 11	do		6, Ashtabula and Youngs- town.
37,440	6	1	12 0	6 0	do	6	
169,728	6	3	23 0	8 6	do	7	
62,400	6	2	9 5	6 9	do	6	
29,952	6	2	12 0	6 2	do	6	
78,000	6	4	15 11	9 3	do		
29,952	6	1	8 2	7 6	do		
52,416	6	1	14 4	7 10	do		6, Cleveland to Sharon.

L.—Route agent and mail-route messenger service in the

Number of route.	Contract designation, termini of route.	Corporate title of company.	Railway mail service designation.	Agent or mail-route messenger service.	Distance.
21055	Cleveland, Dalton.....	East Tennessee, Virginia and Georgia Railroad.	Cleveland and Dalton ..	M. R. M.	132
21036	Columbus, Athens	Columbus and Hocking Valley Railroad	Columbus and Athens..	M. R. M.	77
22001	Indianapolis, Vincennes.	Indianapolis and Vincennes Railroad.	Indianapolis and Vincennes.	R. A.	116
22002	Indianapolis, Terre Haute.	Terre Haute and Indianapolis Railroad.	Indianapolis and Terre Haute.	R. A.	73
22004	Indianapolis, Peru	Indianapolis, Peru and Chicago Railroad.	Michigan City and Indianapolis.	R. A.	163
22015	La Porte, Peru	Chicago, Cincinnati and Louisville Railroad.			
22026	Michigan City, La Porte.	Indianapolis, Peru and Chicago Railroad.			
22006	Columbus, Madison	Jeffersonville, Madison and Indianapolis Railroad.	Columbus and Madison.	M. R. M.	4
22007	New Albany, Indianapolis.	do	Indianapolis and Louisville.	R. A.	114
22008	New Albany, Michigan City (part).	Louisville, New Albany and Chicago Railroad.	La Fayette and Louisville.	R. A.	192
22012	Evansville, Terre Haute.	Evansville and Terre Haute Railroad.	Michigan City and La Fayette.	R. A.	90
22013	Terre Haute, Rockville.	Logansport, Crawfordsville and Southwestern Railroad.	Terre Haute and Evansville.	R. A.	110
22028	Rockville, Logansport.		Logansport and Terre Haute.	R. A.	115
22016	Fairland, Martinsville	Fairland, Franklin and Martinsville Railroad.	Fairland and Martinsville.	M. R. M.	38
22017	Bradford, Logansport.	Pittsburgh, Cincinnati and Saint Louis Railroad.	Logansport and Bradford.	R. A.	115
22018	Indianapolis, Peoria ..	Indianapolis, Bloomington and Western Railroad.	Indianapolis and Peoria	R. A.	212
22019	Jeffersonville, North Vernon.	Ohio and Mississippi R. R.	North Vernon and Louisville.	R. A.	53
22021	Richmond, Ft. Wayne	Grand Rapids and Indiana Railroad.	Grand Rapids and Richmond.	R. A.	223
24018	Fort Wayne, Walton (part).				
22022	Anderson, Goshen	Cincinnati, Wabash and Michigan Railroad.	Goshen and Anderson..	R. A.	114
22024	Terre Haute, Danville	Evansville, Terre Haute and Chicago Railroad.	Danville and Terre Haute.	M. R. M.	57
22011	Cambridge City, Columbus.	Jeffersonville, Madison and Indianapolis Railroad.	Cambridge City and Columbus.	R. A.	6
22027	Butler, Logansport.....	Eel River and Illinois R. R.	Butler and Logansport.	R. A.	94
22030	Terre Haute, Marts	Cincinnati and Terre Haute Railroad.	Terre Haute and Marts	M. R. M.	25
22033	Frankfort, Kokomo	Frankfort and Kokomo R. R.	Kokomo and Frankfort.	M. R. M.	35
22034	Rockport, Huntingburgh.	Cincinnati, Rockport and Southwestern Railroad.	Rockport and Huntingburgh.	M. R. M.	31
22034	Salamanca, Dayton (part).	Atlantic and Great Western Railroad.	Kent and Dayton	R. A.	197
22035	Muncie, La Fayette.....	La Fayette, Muncie and Bloomington Railroad.	Muncie and Bloomington	R. A.	221
22026	La Fayette, Bloomington.	La Fayette, Bloomington and Mississippi Railroad.			
22036	Switz City, Bedford	Bedford, Springfield, Owensboro' and Bloomfield R. R.	Switz City and Bedford.	M. R. M.	41
22038	Rensselaer, Monon	Indianapolis, Adelphi and Chicago Railroad.	Rensselaer and Monon.	M. R. M.	17
22014	State Line, Logansport	Pittsburgh, Cincinnati and Saint Louis Railroad.	Logansport and Warsaw	R. A.	61
22001	Chicago, Milwaukee ..	Chicago and Northwestern Railroad.	Milwaukee and Chicago.	R. A.	57
22003	Chicago, Union Pacific Transfer.	do	Cedar Rapids and Council Bluffs.	R. A.	71
22004	Elgin, Geneva	do	Geneva and Elgin	R. A.	44
22005	Sterling, East Saint Louis.	Chicago, Burlington and Quincy Railroad.	Sterling and Rock Island	R. A.	52
			Rock Island and St. Louis	R. A.	244

United States on the 30th of June, 1878—Continued.

Annual miles of service.	Number of round trips per week over whole or portion of route.	Number of cars or apartments.	Dimension of cars or apartments.		Day or night service.	Mails by express trains.	
			Length.	Width.		Number of round trips over whole route.	Number of round trips per week over portion of route, and between what points.
90,440	7	2	<i>Ft. in.</i> 11 10	<i>Ft. in.</i> 6 10	Day	7	
48,048	6	3	15 11	9 3	do	6	
72,384	6	{ 1	11 5	9 1	do	6	
45,558	6	{ 1	12 10	6 10	do		
		1	10 4	6 10	do		
101,712	6	3	12 0	7 0	do	6	
28,704	6	2	11 0	6 0	do	6	
71,136	6	3	13 0	7 0	do	6	
123,552	6	3	9 6	6 3	do	6	
56,160	6	2	9 6	6 3	do	6	
62,640	6	2	12 6	8 0	do	7	
71,760	6	3	11 0	7 3	do	6	
23,712	6	1	11 0	7 0	do		
71,760	6	2	11 10	8 9	do	6	
132,288	6	4	12 0	8 10	do	7	
33,072	6	1	13 0	8 7	do	6	
145,892	6	3	13 2	7 0	do	6	
71,136	6	2	10 0	6 6	do		6, Wabash to Anderson.
35,568	6	2	9 6	6 6	do	6	
42,432	6	1	11 0	6 0	do	6	
58,656	6	2	11 3	7 3	do	6	
16,224	6						
15,600	6	1	10 0	8 0	do		
19,344	6	1	10 0	8 0	do		
122,928	6	6	14 4	7 10	do	7	
137,904	6	3	14 0	7 5	do	6	
25,584	6	1	10 0	6 6	do		
10,608	6				do		
38,064	6	2	18 8	8 7	do		6, State Line to Kentl
		3	18 8	8 7	Reserve		
108,576	12	2	35 4	9 3	Day	13	
332,208	6	2	35 4	9 3	do	6	
27,456	6	1	9 6	9 5	do		
32,448	6	2	11 2	9 5	do		6, Rock Is. to E. St. Louis.
152,256	6	1	11 8	9 3	do		
		1	11 0	7 4	Reserve		

L.—Route-agent and mail-route messenger service in the

Number of route.	Contract designation, termini of route.	Corporate title of company.	Railway mail service designation.	Agent or mail-route messenger service.	
					Distance.
					Miles.
23007	Chicago, Burlington...	Chicago, Burlington and Quincy Railroad.	Chicago and Streator...	R. A.	38
23007	.....do .....	.....do	Chicago, Foreston and Dubuque.	R. A.	38
23007	Branch, Galva, Keithsburg.	.....do	Galva and Keithsburg	R. A.	50
23008	{ Rushville, Yates City.	Chicago, Burlington and Quincy Railroad.	Yates City and Rushville.	R. A.	64
	{ Branch, Elmwood, Buda.		Buda and Yates City...	R. A.	45
23009	Peoria, Galesburgh...	.....do	Peoria and Galesburgh.	R. A.	54
			Buda and Yates City...	R. A.	3
23011	Burlington, Quincy...	.....do	Burlington and Quincy.	R. A.	73
23012	Streator, Aurora...	.....do	Chicago and Streator...	R. A.	70
23013	Mendota, Clinton...	.....do	Mendota and Clinton...	R. A.	64
23014	Rock Falls, Cornton...	.....do	Cornton and Rock Falls.	M. R. M.	47
23016	Bureau Junction, Peoria.	Chicago, Rock Island and Pacific Railroad.	Bureau Junction and Peoria.	R. A.	47
23017	Chicago, East Saint Louis.	Chicago and Alton Railroad	Quincy and Saint Louis.	R. A.	29
23018	Bloomington, Godfrey	.....do .....	.....do	R. A.	40
23019	Washington, Dwight...	.....do	Dwight and Washington.	R. A.	70
23021	Dubuque, Centralia...	Illinois Central Railroad ..	Freeport and Centralia.	R. A.	276
			Chicago, Foreston, and Dubuque.	R. P. O. .	32
23022	Joliet, Lake Station ..	Michigan Central Railroad..	Lake Station and Joliet	R. A.	45
23023	Decatur, East Saint Louis.	Wabash Railroad	Decatur and East Saint Louis.	R. A.	112
23024	Pekin, Decatur	Pekin, Lincoln and Decatur Railroad.	Peoria and Decatur....	R. A.	62
23025	Hannibal, Naples.....	Wabash Railroad	Bluffs and Hannibal...	R. A.	46
23027	State Line, Warsaw ..	Toledo, Peoria and Warsaw Railroad.	Logansport and Warsaw.	R. A.	229
23029	Urbana, Havana	Indianapolis, Bloomington and Western Railroad.	Urbana and Havana...	R. A.	102
	Branch, White Heath, Decatur.		White Heath and Decatur.	R. A.	32
23030	East Saint Louis, Duquoin.	Saint Louis, Alton and Terre Haute Railroad.	Saint Louis and Duquoin.	R. A.	71
23031	Terre Haute, East Saint Louis.	Saint Louis, Vandalia and Terre Haute Railroad.	Indianapolis, Vandalia, and Saint Louis.	R. A.	165
23002	Indianapolis, Terre Haute (part).				
23032	{ Saint Louis, Evansville.	Saint Louis and Southeastern Railroad.	Evansville and Saint Louis.	R. A.	165
	{ Branch, McLeansborough, Shawneetown.		McLeansborough and Shawneetown.	M. R. M.	41
23033	Beardstown, Shawneetown.	Ohio and Mississippi Railroad.	Beardstown and Shawneetown.	R. A.	229
23034	Springfield, Gilman...	Illinois Central Railroad ..	Gilman and Springfield.	R. A.	111
23036	Aurora, Foreston	Chicago and Iowa Railroad	Foreston and Aurora...	R. A.	89
			Chicago, Foreston, and Dubuque.	R. P. O. .	82
23037	Vincennes, Cairo	Cairo and Vincennes Railroad	Vincennes and Cairo...	R. A.	152
23038	Peoria, Jacksonville...	Peoria, Pekin and Jacksonville Railroad.	Peoria and Jacksonville	R. A.	84
23040	Peoria, Rock Island...	Peoria and Rock Island Railroad.	Rock Island and Peoria	R. A.	92
23041	{ Quincy, Hannibal.. }	Chicago, Burlington and Quincy Railroad.	Quincy and Saint Louis	R. A.	50
	{ Branch, Fall Creek, Louisiana.				
23042	Chicago, Danville	Chicago and Eastern Illinois Railroad.	Chicago and Danville ..	R. A.	137

United States on the 30th of June, 1878—Continued.

Annual miles of service.	Number of round trips per week over whole or portion of route.	Number of cars or apartments.	Dimension of cars or apartments.		Day or night service.	Mails by express trains.	
			Length.	Width.		Number of round trips over whole route.	Number of round trips per week over portion of route, and between what points.
23, 712	6, Chicago to Aurora ...	2	35 8	8 9	Day and night.	.....
23, 712	.....do	1	22 5	8 10	.....do .....	.....
36, 816	6	1	13 7	6 10	.....do .....	.....
39, 936	6	1	11 4	8 11	Day .....	.....	6, Lewistown and Yates City.
22, 080	6	1	13 3	6 6	.....do .....	.....
33, 696	6	1	22 6	8 10	.....do	6	
1, 872	6, Elmwood and Yates City.	1	13 4	6 6	.....do .....	.....	6, Yates City and Galesburgh.
44, 928	6	1	20 0	8 10	.....do .....	.....
43, 630	61	1	22 5	8 10	.....do	6	
39, 936	6	1	9 6	8 0	.....do .....	.....	3, Mendota to Denrock.
29, 728	6	1	6 10	6 2	.....do .....	.....
29, 328	6	1	20 0	9 5	.....do	6	
		1	20 0	9 5	Reserve .....	.....
18, 096	6, Godfrey and East Saint Louis.	2	17 6	8 8	Day .....	.....	12, Godfrey and East Saint Louis.
24, 960	6, Roodhouse and Godfrey.	2	17 6	8 8	.....do .....	.....	12, Roodhouse and Godfrey.
43, 620	6	1	13 9	9 5	.....do .....	.....
61, 824	6	3	19 6	9 0	.....do .....	.....	6, Foreston to Decatur.
		1	18 9	9 0	Reserve .....	.....
51, 168	6, Foreston and Dubuque.	2	35 8	8 9	Night .....	.....
28, 080	6	1	7 1	6 3	Day .....	.....
69, 888	6	2	12 0	9 4	.....do	10	
42, 432	6	1	10 0	7 4	.....do .....	.....
		1	10 0	7 4	Reserve .....	.....
28, 704	6	1	12 0	9 10	Day	7	
		1	12 0	9 10	Reserve .....	.....
142, 896	6	2	18 0	8 7	Day .....	.....	6, Sheldon and Warsaw.
		1	19 0	8 9	.....do .....	.....	3, Bushnell and La Harpe.
		1	18 8	8 8	Reserve .....	.....
63, 648	6	2	10 6	7 0	Day .....	.....
19, 968	6	1	17 10	9 4	.....do .....	.....	6, Urbana to White Heath.
		1	8 4	7 0	Reserve .....	.....
44, 304	6	1	20 0	7 6	Day	7	
		1	20 0	7 6	Reserve .....	.....
102, 960	6	4	19 0	7 5	Day .....	.....
102, 960	6	2	11 9	7 2	.....do	6	
25, 584	6	1	6 0	3 0	.....do .....	.....
		2	11 9	7 2	Reserve .....	.....
142, 896	6	2	11 3	7 7	Day .....	.....	6, Louisville to Fairfield.
		1	10 5	7 4	.....do .....	.....	6, Springfield to Beardstown.
65, 264	6	1	11 8	7 4	.....do .....	.....
		1	11 8	7 4	Reserve .....	.....
51, 168	6	2	5 0	8 0	Day .....	.....
51, 168	6	2	35 8	8 9	Night .....	.....
92, 592	6	2	11 9	6 9	Day .....	.....
52, 416	6	1	13 4	7 8	.....do .....	.....
		1	13 4	7 8	Reserve .....	.....
57, 408	6	1	12 0	7 0	Day .....	.....
		1	12 0	7 0	Reserve .....	.....
31, 200	{ 6, Fall Creek to Louisiana. 6, Quincy to Fall Creek. }	2	18 6	8 11	Day .....	.....	12, Quincy to Hannibal.
79, 248	6	2	17 0	7 0	Day	6	
		1	14 0	6 0	Reserve .....	.....

L.—Route-agent and mail-route messenger service in

Number of route.	Contract designation, termini of route.	Corporate title of company.	Railway mail service designation.	Agent or mail-route messenger service.	Distance.
23043	Streator, Altamont	Chicago and Paducah Railroad.	Streator and Altamont.	R. A.	139
23044	Mattoon, Decatur	Decatur, Mattoon and Southern Railroad.	Mattoon and Decatur	M. R. M.	40
23045	Carbondale, Marion	Carbondale and Shawneetown Railroad.	Marion and Carbondale	M. R. M.	19
23046	Jacksonville, Virden	Jacksonville, Northwestern and Southeastern Railroad.	Virden and Jacksonville	M. R. M.	32
3047	Chester, Tamaroa	Wabash, Chester and Western Railroad.	Tamaroa and Chester	M. R. M.	62
23048	Terre Haute, Peoria	Illinois Midland Railroad	Peoria and Terre Haute	R. A.	140
23049	Springfield, Havana	Springfield and Northwestern Railroad.	Havana and Springfield	R. A.	46
23050	Vincennes, Danville	Paris and Danville Railroad.	Danville and Vincennes	R. A.	114
23051	Joliet, Peoria	Chicago, Pekin and Southwestern Railroad.	Chicago and Peoria	R. A.	145
3053	East Saint Louis, Cairo	Cairo and Saint Louis R. R.	Saint Louis and Cairo	R. A.	146
23054	Chicago, Byron	Chicago and Pacific Railroad	Chicago and Byron	R. A.	93
23055	Decatur, Montezuma	Indiana, Decatur and Springfield Railroad.	Montezuma and Decatur	R. A.	97
23060	Mattoon, Parkersburgh	Grayville and Mattoon R. R.	Mattoon and Parkersburgh.	R. A.	70
24002	Monroe, Adrian	Lake Shore and Michigan Southern Railroad.	Monroe and Adrian	M. R. M.	35
24003	Adrian, Jackson	do	Jackson and Adrian	R. A.	47
24004	White Pigeon, Grand Rapids.	do	Grand Rapids and Elkhart.	R. A.	114
6052	Toledo, Elkhart	do			
24005	Detroit, Chicago	Michigan Central Railroad	Bay City, Wayne and Detroit.	R. A.	132
24015	Monroe, Luddington (part).	Flint and Père Marquette Railroad.			
24006	Detroit, Grand Haven.	Detroit and Milwaukee Railroad.	Detroit and Grand Haven.	R. A.	190
24007	Detroit, Port Huron	Grand Trunk Railroad.	Port Huron and Detroit	M. R. M.	64
24008	Jackson, Fort Wayne	Fort Wayne, Jackson and Saginaw Railroad.	Jackson and Ft. Wayne	R. A.	97
24009	Jackson, Gaylord	Michigan Central Railroad.	Gaylord and Bay City	R. A.	54
24009	do	do	Bay City and Jackson	R. A.	116
24010	Jackson, Grand Rapids	do	Jackson and Grand Rapids.	R. A.	95
24013	Detroit, Bay City	do	Bay City and Detroit	R. A.	109
24015	Monroe, Luddington	Flint and Père Marquette Railroad.	Luddington and Toledo	R. A.	200
24017	Detroit, Howard City	Detroit, Lansing and Northern Railroad.	Detroit and Howard City.	R. A.	165
24018	Fort Wayne, Walton	Grand Rapids and Indiana Railroad.	Potoskey and Grand Rapids.	R. A.	119
24019	Kalamazoo, South Haven.	Michigan Central Railroad.	Cadillac and Grand Rapids.	R. A.	92
24020	Lansing, Fort Wayne Junction.	Chicago and Lake Huron Railroad.	Kalamazoo and South Haven.	M. R. M.	40
24022	Port Huron, Flint	do	Port Huron and Valparaiso.	R. A.	166
24021	New Buffalo, Pentwater.	Chicago and Michigan Lake Shore Railroad.			67
24023	Allegan, Muskegon	Michigan Lake Shore R. R.	Pentwater and Nunica.	R. R. M.	39
24024	Ypsilanti, Bankers	Detroit, Hillsdale and Southwestern Railroad.	Muskegon and Allegan.	R. A.	52
24025	Jackson, Niles	Michigan Central Railroad.	Ypsilanti and Bankers.	R. R. M.	66
24026	Grand Rapids, White Cloud.	Grand Rapids, Newago and Lake Shore Railroad.	Jackson and Niles	R. A.	165
24028	Jonesville, Lansing	Lake Shore and Michigan Southern Railroad.	White Cloud and Grand Rapids.	R. A.	47
24030	East Saginaw, Saint Louis.	Saginaw Valley and Saint Louis Railroad.	Lansing and Jonesville.	R. A.	61
24040	Saint Louis, Cedar Lake	Chicago, Saginaw and Canada Railroad.	East Saginaw and Cedar Lake.		

the United States on the 30th of June, 1878—Continued.

Annual miles of service.	Number of round trips per week over whole or portion of route.	Number of cars or apartments.	Dimension of cars or apartments.		Day or night service.	Mails by express trains.	
			Length.	Width.		Number of round trips over whole route.	Number of round trips per week over portion of route, and between what points.
98,592	6.....	2	<i>Ft. in.</i>	<i>Ft. in.</i>	Day.....		
		2	11 0	7 2	Reserve.....		
24,960	6.....	1	11 0	7 6	Day.....		
11,232	6.....	1	8 0	3 6	do.....		
19,968	6.....	1	7 0	6 5	do.....		
26,203	6.....	1	9 1	6 4	do.....		
112,330	6.....	2	11 11	9 0	do.....		
29,952	6.....	1	12 6	7 4	do.....		6, Springfield to Petersburg.
71,136	6.....	2	12 1	7 3	do.....		
78,000	6.....	2	10 0	7 5	do.....		
92,352	6.....	2	9 0	6 0	Day.....		
		1	13 0	6 0	Reserve.....		
58,032	6.....	1	12 0	7 0	Day.....		
34,288	6.....	1	16 9	8 3	do.....		
		1	16 9	8 3	Reserve.....		
43,680	6.....	1	10 0	7 0	Day.....		
21,840	6.....	1	13 0	9 0	do.....	6	
29,328	6.....	1	12 0	8 4	Day.....	6	
71,136	6.....	1	16 0	9 0	do.....	6	
76,148	{ 6, Detroit and Wayne; 6, Monroe and Bay City }	1	12 9	10 9	do.....	6	
118,560	6.....	1	19 0	9 2	do.....	6	
		1	20 0	9 2	do.....		
39,936	6.....	1	26 0	6 0	do.....	6	
60,538	6.....	1	10 4	9 2	do.....		
33,696	6, West Branch and Bay City.	1	16 6	8 6	do.....		6, Gaylord to West Branch.
72,384	6.....	1	13 6	9 0	do.....	6	
59,280	6.....	1	10 6	8 6	do.....	6	
68,016	6.....	1	10 10	9 6	do.....	6	
174,720	6.....	2	20 0	8 11	do.....		6, Reed City to Monroe.
102,960	6.....	1	13 1	9 1	do.....	6	
		1	12 2	9 1	do.....		
74,256	6, Walton and Grand Rapids.	1	15 2	7 0	do.....	6	
61,152	6, Cardillac and Grand Rapids.	1	14 0	6 8	do.....		
		1	14 5	6 7	do.....		
24,960	6.....	1	12 5	6 4	do.....		
103,534	6.....	2	12 6	7 6	do.....	6	
41,808	6.....	2	13 6	6 6	do.....		
36,816	6.....	1	12 9	9 3	do.....		
36,192	6.....	1	12 0	6 8	do.....		
41,184	6.....	1	10 0	6 0	do.....		
65,520	6.....	1	16 6	8 6	do.....		
		1	10 6	7 0	do.....		
29,328	6.....	1	6 10	3 9	do.....		
33,064	6.....	1	17 8	9 4	do.....	6	
		1	7 0	5 0	do.....		
34,320	6.....	1	12 0	8 0	do.....	6	

L.—Route-agent and mail-route messenger service in the

Number of route.	Contract designation, termini of route.	Corporate title of company.	Railway mail service designation.	Agent or mail-route messenger service.	Distance.
					<i>Miles.</i>
24031	Fort Howard, Ishpeming.	Chicago and Northwestern Railroad.	Ishpeming and Fort Howard.	R. A.	180
24032	Muskegon, Big Rapids	Chicago and Michigan Lake Shore Railroad.	Big Rapids and Holland.	R. A.	82
24021	New Buffalo, Pentwater (part).				
24021	.....do .....	.....do	Grand Rapids and Buffalo.	R. A.	115
24033	Ionia, Stanton	Detroit, Lansing and Northern Railroad.	Stanton and Ionia	M. R. M.	25
24005	Detroit, Chicago (part)	Michigan Central Railroad.	Detroit and Jackson ...	R. A. ...	75
24035	Toledo, Detroit	Toledo, Canada Southern and Detroit Railroad.	Detroit and Toledo	M. R. M.	56
24036	Grosse Ile, Fayette...	Chicago and Canada Southern Railroad.	Detroit and Fayette....	M. R. M.	67
24038	Walton, Petoskey	Grand Rapids and Indiana Railroad.	Petoskey and Grand Rapids.	R. A.	71
24039	Flint, Lansing				
24041	Marquette, L'Anse ...	Chicago and Northeastern Railroad.	Port Huron and Valparaiso.	R. A.	50
24041	Marquette, L'Anse ...	Marquette, Houghton and Ontonagon Railroad.	Marquette and L'Anse.	R. A.	63
25001	Milwaukee, North McGregor.	Chicago, Milwaukee and Saint Paul Railroad.	Milwaukee and Prairie du Chien.	R. A.	197
25002	Milwaukee, La Crosse.	.....do	Minneapolis and Sparta	R. A. ...	26
25003	Milwaukee, Berlin ...	.....do	Oshkosh and Milwaukee	R. A.	24
25004	Milton Junction, Monroe.	.....do	Milton Junction and Monroe.	R. A.	42
25005	Watertown, Madison ..	.....do	Watertown and Madison.	M. R. M.	38
25006	Horicon, Portage .....	.....do	Horicon and Portage...	R. A.	45
25008	Oshkosh, Ripon .....	.....do	Oshkosh and Milwaukee	R. A.	21
25010	Caledonia Station, Winona Junction.	Chicago and Northwestern Railroad.	Elroy and Harvard	R. A.	150
25011	Kenosha, Rockford (part).				
25010	Caledonia Station, Winona Junction.	.....do	Elroy and New Ulm ...	R. A.	55
25011	Kenosha, Rockford...	.....do	Kenosha and Rockford.	R. A.	73
25012	Winona, Winona Junction.	.....do	Elroy and New Ulm ..	R. A.	30
25013	Milwaukee, Fond du Lac.	.....do	Fond du Lac and Milwaukee.	R. A.	64
25014	Elroy, Saint Paul	Chicago, Saint Paul and Minnesota Railroad.	Saint Paul and Elroy ..	R. A.	198
25015	Green Bay, Winona...	Green Bay and Minnesota Railroad.	Green Bay and Winona	R. A.	216
25016	Milwaukee, Green Bay, Branch, Hilbert Menasha.	Wisconsin Central Railroad.	Menasha and Milwaukee.	R. A.	128
25017	Menasha, Ashland				
25018	Milwaukee, Two Rivers Branch, Manitowoc, New London.	Milwaukee, Lake Shore and Western Railroad.	New London and Milwaukee.	R. A.	149
25019	Sheboygan, Princeton.	Sheboygan and Fond du Lac Railroad.	Sheboygan and Princeton.	R. A.	79
25022	Tomah, Wausau	Wisconsin Valley Railroad.	Wausau and Tomah ...	R. A.	90
25023	Madison, Portage	Chicago, Milwaukee and Saint Paul Railroad.	Portage and Madison ...	R. A.	39
25024	Racine, Rock Island Junction.	Western Union Railroad.	Racine and Rock Island	R. A.	189
25025	Galena, Platteville....	Galena and Southern Wisconsin Railroad.	Platteville and Galena.	R. A.	31
25027	Stevens Point, Portage	Wisconsin Central Railroad.	Stevens Point and Portage.	R. A.	71

United States on the 30th of June, 1878—Continued.

Annual miles of service.	Number of round trips per week over whole or portion of route.	Number of cars or apartments.	Dimension of cars or apartments.		Day or night service.	Mails by express trains.	
			Length.	Width.		Number of round trips over whole route.	Number of round trips per week over portion of route, and between what points.
131, 400	7.	2	19 0	7 0	Day		
		1	18 0	7 0	Reserve		
51, 168	{ 6, Muskegon to Holland	1	10 0	6 6	Day		
	{ 6, Big Rapids to Muskegon.	1	12 7	9 2	do		
71, 760	6.	1	13 0	9 0	do		
15, 600	6.	1	10 0	6 4	do		
46, 800	6.	1	11 0	7 1	Day and night.		
		1	10 2	9 2	do		
34, 944	6.	1	16 2	9 6	Day	18	
41, 184	6.	1	16 2	9 6	do		6, Monroe to Grosse Isle.
44, 304	6.	1	15 2	7 0	do		
		1	14 0	6 8	do		
31, 900	6.	2	12 6	7 6	do	6	
39, 312	6.	1	12 0	7 6	do		6, Marquette to Ne- gaunee.
122, 928	6.	2	19 9	9 4	do	6	
		1	19 9	9 4	Reserve		6, Milwaukee to Milton Junction.
16, 224	6, Sparta to La Crosse.	2	39 3	9 5	Day		6, Sparta to La Crosse.
58, 656	6, Milwaukee to Ripon.	1	19 10	9 6	do	6	6, Ripon to Berlin.
		1	19 10	9 6	Reserve		
26, 208	6.	1	11 8	7 4	Day		12, Milton Junction to Janesville.
23, 712	6.	1	10 10	6 8	Day		
22, 080	6.	1	11 1	7 11	do		
13, 104	6.	1	19 10	9 6	do		
		1	11 11	7 0	do		
93, 600	6.	2	35 4	9 3	do	6	
34, 320	6, Elroy to Winona Junction.	2	15 3	7 6	do		
		1	14 6	7 6	do		6, Elroy to Harvard.
45, 552	6.	1	12 6	7 2	do		6, Harvard to Caledonia Station.
9, 360	6.	2	15 3	7 6	do	6	
		1	14 6	7 6	do		
39, 936	6.	1	12 3	7 4	do	6	
123, 552	6.	2	34 2	9 2	do	6	
		1	34 2	9 2	Reserve		
134, 784	6.	2	12 0	7 6	Day		6, Hudson Junction to Saint Paul.
		1	12 0	7 6	Reserve		
79, 872	{ 6.					6	
	{ 6, Milwaukee to Hilbert	4	14 0	7 0	Day		6, Hilbert to Green Bay.
155, 376	6.	2	13 0	7 0	do		
		2	13 0	7 0	Reserve		6, Phillips to Ashland.
92, 976	6.	1	13 10	7 8	do		
		2	13 10	7 8	Day		12, Two Rivers Junction to Two Rivers.
49, 296	6.	1	10 0	7 0	do		
		1	10 0	7 0	Reserve		
66, 160	6.	2	11 6	8 6	Day		
24, 336	6.	1	13 6	5 11	do		
117, 936	6.	2	16 9	9 3	do		
		1	16 9	9 3	Reserve		
19, 344	6.	1	13 6	7 2	Day		
44, 304	6.	1	7 7	6 10	do		

L.—Route agent and mail-route messenger service in the

Number of route.	Contract designation, termini of route.	Corporate title of company.	Railway mail service designation.	Agent or mail-route messenger service.	Distance.
25028	Hudson, Clayton	North Wisconsin Railroad	Clayton and Hudson	R. A.	44
26001	Duluth, Bismarck	Northern Pacific Railroad ..	Saint Paul and Bismarck.	R. A.	448
26002	Saint Paul, Breckenridge.	Saint Paul and Pacific Railroad.	Glyndon and Saint Paul	R. A.	219
26003	Saint Paul, Sank Rapids.	.....do	Saint Paul and Bismarck.	R. A.	75
26004	East Saint Cloud, Melrose.	.....do	Sank Rapids and Melrose.	R. A.	35
26005	Saint Paul, Saint James	Saint Paul and Sioux City Railroad.	Saint Paul and Sioux City.	R. A.	122
26006	White Bear Lake, Albert Lea.	Minneapolis and Saint Louis Railroad.	Minneapolis and Albert Lea.	R. A.	123
26007	Saint Paul, Duluth.....	Saint Paul and Duluth Railroad.	Duluth and Saint Paul	R. A.	156
26009	Minneapolis, North McGregor.	Chicago, Milwaukee and Saint Paul Railroad.	Saint Paul and McGregor.	R. A.	205
			Minneapolis and Sparta	R. A.	10
26010	Hastings, Glencoe .....	.....do	Hastings and Glencoe	R. A.	75
26011	Winona, La Crosse .....	.....do	Minneapolis and Sparta	R. A.	25
26012	Austin, Mason City.....	.....do	Austin and Mason City	R. A.	41
26013	Saint Paul, Winona .....	.....do	Minneapolis and Sparta	R. A.	104
26014	Saint Peter, Marshall	Winona and Saint Peter Railroad.	New Ulm and Marshall.	R. A.	130
			Elroy and New Ulm	R. A.	30
26015	Winona, Saint Peter .....	.....do .....	.....do	R. A.	147
26016	La Crosse, Winnebago City.	Southern Minnesota Railroad	La Crosse and Winnebago City.	R. A.	170
26017	Mankato, Wells.....	Central Railroad of Minnesota.	Mankato and Wells.....	R. A.	41
26018	Saint James, Lemars.....	Sioux City and Saint Paul Railroad.	Saint Paul and Sioux City.	R. A.	123
26020	Breckenridge, Fisher's Landing.	Saint Paul and Pacific Railroad.	Glyndon and Saint Paul	R. A.	122
26021	Sank Rapids, Brainerd.	Northern Pacific Railroad ..	Saint Paul and Bismarck.	R. A.	61
27001	Burlington, Albert Lea.	Burlington, Cedar Rapids and Northern Railroad.	Albert Lea and Burlington.	R. A.	253
27002	Cedar Rapids, Postville.	.....do	Postville and Cedar Rapids.	R. A.	99
27003	Cedar Rapids, Holland.	.....do	Cedar Rapids and Holland.	R. A.	71
27004	Muscatine, Riverside.	.....do	Muscatine and Riverside.	M. R. M.	32
27005	Burlington, Council Bluffs.	Chicago, Burlington and Quincy Railroad.	Burlington and Council Bluffs.	R. A.	293
	Branch, Red Oak, Eastport	.....do	Red Oak and Eastport.	R. A.	50
27006	Chariton, Leon .....	.....do	Chariton and Leon	M. R. M.	37
27008	Burlington, Laclede	Burlington and Southwestern Railroad.	Burlington and Laclede.	R. A.	153
27010	Albia, Mason City.....	Central Railroad Company of Iowa.	Mason City and Ottumwa.	R. A.	169
27011	Keokuk, Burlington..	Chicago, Burlington and Quincy Railroad.	Burlington and Keokuk.	R. A.	43
27012	Clinton, La Crescent Junction.	Chicago, Dubuque and Minnesota Railroad.	{ Dubuque and Clinton. La Crosse and Dubuque.	R. A. R. A.	60 118
27014	Davenport, Missouri River.	Chicago, Rock Island and Pacific Railroad.	Davenport and Council Bluffs.	R. A.	318
27015	Des Moines, Indianola.	.....do	Des Moines and Winterset.	A. R.	48
27016	Branch, Somerset Junction, Winterset.	.....do .....	.....do .....	.....do .....	.....do
	Washington, Knoxville.	.....do	Washington and Oskaloosa.	R. A.	72

United States on the 30th of June, 1878—Continued.

Annual miles of service.	Number of round trips per week over whole or portion of route.	Number of cars or apartments.	Dimension of cars or apartments.		Day or night service.	Mails by express trains.	
			Length.	Width.		Number of round trips over whole route.	Number of round trips per week over portion of route, and between what points.
27,456	6	1	6 0	3 6	Day		
279,552	6, Brainerd and Brainerd.	2	19 10	8 4	Day and night		6, Duluth to Brainerd.
		2	17 10	8 10	do		
136,656	6	2	12 0	8 9	Reserve		6, Saint Paul to Wilmar.
		2	21 6	8 9	Day		
44,800	6	1	20 5	8 9	Reserve		
		2	19 10	8 4	Day		
21,840	6	1	9 1	7 4	do		
76,128	6	2	22 10	9 4	do	6	
76,752	6	2	22 0	9 3	do	6	
97,344	6	2	22 0	8 6	do	6	
127,920	6, Saint Paul Junction to North McGregor.	2	23 6	9 0	do		13, Minneapolis to Austin.
		1	23 6	9 0	Reserve		
6,240	6, Minneapolis and Saint Paul Junction.	2	39 2	9 2	Day	6	
46,800	6	1	12 0	6 3	do		
15,600	6	2	39 2	9 2	do	6	
25,584	6	1	12 0	9 0	do	7	
64,896	6	2	39 2	9 2	do	6	
74,880	6	1	11 10	9 5	do		
18,720	6, Saint Peter and New Ulm.	2	15 3	7 6	do	6	
91,728	6	2	15 3	7 6	do	6	
106,080	6	1	22 0	9 1	do		
		1	20 0	9 2	do		
		1	13 0	8 10	Reserve		
25,584	6	1	8 2	7 0	Day		
76,752	6	2	22 10	9 4	do		
76,128	6 Breckinridge and Glyndon.	1	19 10	6 9	do		6, Glyndon and Fisher's Landing.
38,064	6	2	19 10	8 4	do		
157,872	6	3	18 6	9 4	do	6	6, Cedar Rapids to La Porte City.
61,776	6	1	10 0	9 4	do		6, West Union to Postville.
44,304	6	1	9 10	7 8	do		
		1	9 10	7 8	do		
19,968	6	1	9 10	7 8	do		
182,832	6	3	51 4	8 10	do	6	
31,200	6	1	13 7	6 9	do		
23,088	6	2	16 3	6 6	do		
114,192	6	1	13 6	8 6	do		
		1	11 4	9 4	do		
105,456	6 Eddyville Transfer to Mason City.	2	11 4	9 6	do	6	
		1	11 4	9 6	Reserve		
26,832	6	2	15 3	8 9	Day		
37,440	6	3	18 4	8 10	do	6	
73,632	6 Dubuque to La Crescent.	1	12 1	7 4	Reserve		
198,432	6	3	40 0	9 5	Day		6, Iowa City to Missouri River.
29,952	6	1	9 0	7 0	do	6	6, Somerset Junction and Indianola.
48,672	6	1	9 0	8 8	do		6, Oskaaloosa to Knoxville.

L.—Route-agent and mail-route messenger service in the

Number of route.	Contract designation, termini of route.	Corporate title of company.	Railway mail service designation.	Agent or mail-route messenger service.	Distance.
27017	Wilton Junction, Leavenworth.	Chicago, Rock Island and Pacific Railroad.	Wilton Junction and Trenton.	R. A.	29
27018	Davenport, Maquoketa.	Davenport and Northwestern Railroad.	Trenton and Leavenworth.	R. A.	102
27019	Keokuk, Des Moines.	Keokuk and Des Moines Railroad.	Maquoketa and Davenport.	R. A.	43
27020	Farley, Cedar Rapids.	Chicago, Milwaukee and Saint Paul Railroad.	Des Moines and Keokuk.	R. A.	163
27021	Dubuque, Sioux City.	Illinois Central Railroad.	Mason City and Ottumwa.	R. A.	16
27022	Waterloo, Mona.	do	Farley and Cedar Rapids.	R. A.	53
27023	Beulah, Elkader.	Iowa Eastern Railroad.	Dubuque and Ft Dodge.	R. A.	191
27024	Clinton, Anamosa.	Chicago and Northwestern Railroad.	Fort Dodge and Sioux City.	R. A.	135
27025	Calmar, Algona.	Chicago, Milwaukee and Saint Paul Railroad.	Saint Paul and Sioux City.	R. A.	25
27027	Davenport, Fayette.	Davenport and Northwestern Railroad.	Mona and Waterloo.	R. A.	60
27028	Savannah, Marion.	Chicago, Milwaukee and Saint Paul Railroad.	Boulah and Elkader.	M. R. M.	91
27029	Missouri Valley, Branch, California Junction, Wisner.	Sioux City and Pacific Railroad.	Clinton and Anamosa.	R. A.	74
27030	Des Moines, Callanan.	Des Moines and Minnesota Railroad.	Calmar and Algona.	R. A.	127
27031	Des Moines, Fort Dodge.	Des Moines and Fort Dodge Railroad.	Fayette and Davenport.	R. A.	129
27033	Albia, Knoxville.	Chicago, Burlington and Quincy Railroad.	Sabula and Marion.	R. A.	39
27038	Maple River Junction, Mapleton.	Chicago and Northwestern Railroad.	Sioux City and Missouri Valley.	R. A.	76
27039	Turkey River, Wadena.	Chicago, Dubuque and Minnesota Railroad.	Wisner and Blair.	R. A.	63
28002	Saint Louis, Columbus.	Saint Louis, Iron Mountain and Southern Railroad.	Callanan and Des Moines.	R. A.	56
28003	Pacific, Vinita.	Saint Louis and San Francisco Railroad.	Fort Dodge and Des Moines.	R. A.	89
28004	Saint Louis, Kansas City.	Saint Louis, Kansas City, and Northern Railroad.	Knoxville and Albion.	M. R. M.	34
28005	Quincy, Saint Joseph.	Hannibal and Saint Joe Railroad.	Maple River Junction and Mapleton.	M. R. M.	61
28006	Kansas City, Union Pacific Transfer.	Kansas City, Saint Joseph and Council Bluffs R. R.	Turkey River and Wadena.	M. R. M.	44
28007	Moberly, Ottumwa.	Saint Louis, Kansas City and Northern Railroad.	Saint Louis and Columbus.	R. A.	197
28012	St. Joseph, Lexington.	do	Saint Louis and Vinita.	R. A.	326
28013	Brunswick, Pattonsburgh.	Brunswick and Chillicothe, and Saint Louis, Council Bluffs and Omaha R. R.	Saint Louis, Moberly, and Kansas City.	R. A.	277
28015	Alexandria, Centreville.	Missouri, Iowa and Nebraska Railroad.	Cameron and Atchison.	R. A.	34
28017	Sedalia, Lexington.	Missouri Pacific.	Council Bluffs and Kansas City.	R. A.	197
28018	Keokuk, Clarksville.	Saint Louis, Keokuk, and North Western Railroad.	Ottumwa and Moberly.	R. A.	131
28019	Quincy, Kirksville.	Quincy, Missouri and Pacific Railroad.	Lexington and Saint Joseph.	R. A.	77
28020	Pierce City, Osawego.	Missouri and Western R. R.	Brunswick and Pattonsburgh.	R. A.	80
28021	Mexico, Cedar City.	Chicago and Alton Railroad.	Alexandria and Centreville.	R. A.	85
28022	Roadhouse, Mexico.	do	Sedalia and Lexington.	R. A.	36
			Keokuk and Louisiana.	R. A.	85
			Quincy and Kirksville.	R. A.	71
			Pierce City and Osawego.	R. A.	73
			Mexico and Jefferson.	R. A.	50
			Quincy and Saint Louis.	R. A.	39

United States on the 30th of June, 1878—Continued.

Annual miles of service.	Number of round trips per week over whole or portion of route.	Number of cars or apartments.	Dimension of cars or apartments.		Day or night service.	Mails by express trains.	
			Length.	Width.		Number of round trips over whole route.	Number of round trips per week over portion of route, and between what points.
137,280	6.....	2	<i>Ft. in.</i> 18 0	<i>Ft. in.</i> 9 6	Day.....	6	
63,648	7.....	1	17 6	9 2	Day and night.....		
26,832	6.....	1	25 2	9 5	do.....		
	6.....	1	10 10	7 0	Day.....		
101,712	6.....	2	16 4	8 11	do.....	6	
9,964	6, Ottumwa and Eddy-ville Transfer. }	2	16 4	8 11	Reserve.....		6, Ottumwa and Eddy-ville Transfer. 6, Marion and Cedar Rapids.
34,320	6.....	2	12 0	8 6	Day.....		
	6.....	1	12 0	8 6	Reserve.....		
	6.....	1	10 0	9 0	Day.....		
119,184	6.....	2	17 8	9 0	Day and night.....	6	
84,240	6.....	1	17 8	9 0	do.....		
15,600	6, Le Mars and Sioux City.	1	16 11	9 0	do.....		
		2	22 0	9 4	do.....		
49,920	6.....	2	12 6	8 6	Day.....		6, Waterloo to Mitchell.
	6.....	1	11 6	8 6	do.....		
12,480	6.....	1	9 0	5 5	do.....		
46,176	6.....	1	10 2	6 10	do.....		
39,624	6.....	2	12 6	8 6	do.....		
	6.....	1	11 6	8 6	do.....		
80,496	6.....	2	10 5	7 0	do.....		
53,536	6, Sabula to Marion.....	2	10 7	6 9	do.....		
47,424	6.....	1	17 6	9 6	do.....	7	
51,792	6.....	1	17 6	9 6	Reserve.....		6, California to Blair.
	6.....	2	13 6	9 0	Day.....		
36,192	6.....	1	11 0	5 2	do.....		12, Des Moines to Ames.
53,536	6.....	1	16 6	7 0	do.....		
21,216	6.....	1	6 4	3 10	do.....		6, Grand Junction to Fort Dodge.
38,064	6.....	1	12 6	7 8	do.....		
27,456	6.....	1	7 7	7 1	do.....		
122,928	6.....	2	13 10	9 2	do.....	7	
237,980	7.....	5	21 11	7 3	Day and night.....		
173,848	6.....	4	24 6	7 6	Day.....	7	6, Pacific to Rolla; 6, St. Louis to Warrenton
21,216	6, Cameron to Saint Joseph.	1	13 0	9 0	do.....		
122,928	6.....	3	40 0	9 0	do.....	7	6, Saint Joe to Winthrop.
95,630	7.....	2	21 11	7 5	Night.....	6	
48,048	6.....	2	19 5	7 5	Day.....		
49,920	6.....	1	8 2	6 10	do.....		6, Brunswick to Chilli-cothe.
53,040	6.....	1	11 9	6 10	do.....		
34,944	6.....	1	8 0	6 8	do.....		
53,040	6.....	1	18 0	8 11	do.....	6	
44,340	6.....	1	11 0	4 7	do.....		
53,290	7.....	1	12 8	6 10	do.....		
31,200	6.....	1	17 0	6 9	do.....		
24,336	6, Roadhouse to Louisiana.	2	17 6	8 8	do.....	6	

L.—Route-agent and mail-route messenger service in the

Number of route.	Contract designation, termini of route.	Corporate title of company.	Railway mail service designation.	Agent or mail-route messenger service.	Distance.
28023	Cuba, Salem	Saint Louis, Salem, and Little Rock Railroad.	Cuba and Salem	M. R. M.	Miles. 48
28024	Holden, Paola	Missouri, Kansas and Texas.	Holden and Paola	R. A.	53
28027	Cairo, Poplar Bluff	Saint Louis, Iron Mountain and Southern Railroad.	Cairo and Poplar Bluff	R. A.	73
28028	St. Joseph, Hopkins	Kansas City, Saint Joe and Council Bluffs R. R.	Creston and Saint Joseph.	R. A.	61
28030	St. Joseph, Atchison	Hannibal and Saint Joseph Railroad.	Cameron and Atchison.	R. A.	22
28033	Kansas City, Lexington.	Wyandotte, Kansas City, and Northwestern R. R.	Lexington and Kansas City.	R. A.	42
29001	Hopefield, Little Rock	Memphis and Little Rock Railroad.	Memphis and Little Rock.	R. A.	174
29002	Helena, Clarendon	Arkansas Central Railroad.	Helena and Clarendon.	R. A.	45
29003	Argenta, Fort Smith	Little Rock and Fort Smith Railroad.	Little Rock and Fort Smith.	R. A.	169
29004	Pine Bluff, Collins	Little Rock, Mississippi River and Texas R. R.	Pine Bluff and Collins.	R. A.	100
30002	New Orleans, Donaldsonville.	New Orleans and Texas	New Orleans and Donaldsonville.	R. A.	64
30003	New Orleans, Brashear	Morgan's Louisiana and Texas Railroad.	New Orleans and Morgan City.	R. A.	33
30008	Vicksburgh, Monroe	Vicksburgh, Shreveport and Texas Railroad.	Vicksburgh and Monroe.	M. R. M.	75
31001	Houston, Galveston	Galveston, Houston and Henderson Railroad.	Houston and Galveston.	R. A.	51
31002	Harrisburgh, San Antonio.	Galveston, Harrisburgh and San Antonio Railroad.	Houston and San Antonio.	R. A.	214
31003	Houston, Denison City	Houston and Texas Central Railroad.	Denison and Houston.	R. A.	37
31004	Hempstead, Austin	do	Hempstead and Austin.	R. A.	112
31005	Bremond, Waco	do	Bremond and Waco.	R. A.	44
31006	Longview, Houston. } Branch, Mineola, } Troupe.	International and Great Northern Railroad.	Longview and Houston.	R. A.	44
31007	Palestine, Austin	do	Palestine and Austin.	R. A.	183
31009	Shreveport, Ft. Worth	Texas and Pacific Railroad.	Shreveport and Marshall.	R. A.	40
31009	do	do	Texarkana and Fort Worth.	R. A.	253
31010	Marshall, Texarkana	do	Sherman and Texarkana.	R. A.	154
31011	Sherman, Texarkana	do	do	R. A.	154
31012	Houston, Orange	Texas and New Orleans R. R.	Orange and Houston.	R. A.	106
31013	Jefferson, Pittsburgh	East Line and Red River Railroad.	Jefferson and Pittsburgh.	R. A.	6
33001	Kansas City, Denver	Kansas Pacific Railroad	Kansas City and Denver.	R. A.	68
33002	Lawrence, Leavenworth.	do	Leavenworth and Ottawa.	R. A.	33
33003	Atchison, Waterville	Central Branch of Union Pacific.	Atchison and Concordia.	R. A.	100
33004	{ Lawrence, Coffeyville. }	Leavenworth, Lawrence and Galveston.	{ Leavenworth and Burlington. }	R. A.	57
33005	{ Cherryvale, Independence. }	Leavenworth, Lawrence and Galveston Railroad.	{ Kansas City and Independence. }	R. A.	64
33006	{ Kansas City, Ottawa }	do	{ Kansas City and Independence. }	R. A.	64
33007	Elwood, Hastings	Saint Joseph and Denver City Railroad.	Saint Joseph and Hastings.	R. A.	27
33008	Kansas City, Baxter Springs.	Missouri River, Fort Scott and Gulf Railroad.	Kansas City and Baxter Springs.	R. A.	100
33009	Junction City, Parsons	Missouri, Kansas and Texas Railroad.	Junction City and Parsons.	R. A.	124
33010	Atchison, Pueblo ... } Branch, Newton, Wichita. }	Atchison, Topeka and Santa Fé Railroad.	Atchison and Pueblo ...	R. A.	60

United States on the 30th of June, 1878—Continued.

Annual miles of service.	Number of round trips per week over whole or portion of route.	Number of cars or apartments.	Dimension of cars or apartments.		Day or night service.	Mails by express trains.	
			Length.	Width.		Number of round trips over whole route.	Number of round trips per week over portion of route, and between what points.
24,960	6.....	1	<i>Ft. in.</i> 11 6	<i>Ft. in.</i> 6 6	Day .....	.....
34,320	6.....	1	13 3	7 3	...do .....	.....
45,552	6.....	1	10 0	6 8	Day and night .....	.....
38,064	6.....	1	15 3	7 4	Day	6	
13,728	6.....	1	13 0	9 0	...do	7	
26,903	6.....	1	8 0	5 1	...do .....	.....
97,820	7.....	1	23 0	8 6	Day and night .....	.....
29,952	6.....	1	9 4	6 5	Day .....	.....
105,456	6.....	1	12 3	7 3	...do .....	.....
31,200	3.....	1	6 9	2 9	...do .....	.....
39,936	6.....	1	9 0	6 6	...do .....	.....
60,590	7.....	1	11 0	6 4	Reserve .....	.....
		1	10 6	6 6	Day .....	.....
		1	9 4	6 4	...do .....	.....
		1	15 4	6 6	...do .....	.....
		1	9 0	6 4	Reserve .....	.....
54,750	7.....	1	15 4	6 6	...do .....	.....
		1	11 0	7 0	Day .....	.....
		1	8 6	7 1	...do .....	.....
37,230	14.....	1	8 0	7 0	Reserve .....	.....
		1	15 2	6 10	Day .....	.....
133,536	6.....	1	12 0	9 0	...do .....	.....
246,010	7.....	1	18 0	9 3	Day and night	7	
73,632	6.....	1	14 8	8 7	Day	7	
27,456	6.....	1	18 2	9 0	...do	7	
172,280	7.....	1	14 0	7 9	Day and night .....	.....
27,456	6.....	1	7 8	7 2	...do .....	.....
133,590	7.....	1	13 0	7 2	...do .....	.....
24,960	6.....	1	8 7	7 8	Day	6	
184,690	7.....	2	16 10	7 6	Day and night .....	.....
96,096	6.....	1	13 4	7 8	...do .....	.....
66,144	6.....	1	7 0	7 0	Day .....	.....
30,576	6.....	1	9 6	6 6	...do .....	.....
465,740	7.....	8	30 0	9 6	Day and night .....	.....	3½, Kansas City to Solomon.
24,090	7.....	1	18 0	8 6	Day .....	.....
62,400	6.....	1	14 0	7 6	...do .....	.....
16,848	6.....	1	18 2	8 7	...do .....	.....
60,623	6.....	1	18 2	8 7	...do .....	.....	6, Cherryvale to Coffeyville.
39,936	6.....	{ 1	12 2	8 7	...do .....	.....
141,648	6.....	3	12 0	7 3	...do .....	.....
99,840	6.....	1	18 1	8 7	...do	7	
97,344	6.....	2	15 1	7 4	...do .....	.....
470,850	7.....	{ 1	23 2	9 4	Day and night .....	.....	6, Kansas City to Wichita.
		{ 1	14 0	8 0	...do .....	.....



L.—Route-agent and mail-route messenger service

Number of route.	Contract designation, termini of route.	Corporate title of company.	Railway mail service designation.	Agent or mail-route messenger service.	Distance.
33012	Atchison, Lincoln.....	Atchison and Nebraska R. R.	Lincoln and Atchison..	R. A.	15
33013	Leavenworth, Oaaga..	Kansas Central Railroad ..	Leavenworth and Oaaga	R. A.	24
33015	Junction City, Clifton.	Junction City and Fort Kearney Railroad.	Clifton and Junction City.	R. A.	51
33016	Topeka, Kansas City..	Atchison, Topeka and Santa Fé Railroad.	Kansas City and Topeka.	R. A.	6
33019	Ottawa, Burlington...	Kansas City, Burlington and Santa Fé Railroad.	Leavenworth and Burlington.	R. A.	4
33020	Girard, Jopling.....	Jopling Railroad	Girard and Jopling	M. R. M.	31
33022	Greenleaf, Concordia..	Republican Valley Railroad	Atchison and Concordia	R. A.	42
34002	Plattsmouth, Kearney	Burlington and Missouri River Railroad Company in Nebraska.	Omaha and Kearney...	R. A.	191
34003	Omaha, Tekama	Omaha and Northwestern Railroad.	Tekama and Omaha ...	R. A.	40
34004	Omaha, Concord	Burlington and Missouri River Railroad Company in Nebraska.	Omaha and Kearney ...	R. A.	21
34005	Brownville, York.....	Nebraska Railroad	York and Brownville ..	R. A.	12
34006	Crete, Beatrice.....	Burlington and Missouri River Railroad Company in Nebraska.	Crete and Beatrice.....	M. R. M.	32
34008	Valley, David City....	Omaha and Republican Valley Railroad.	Valley and David City	R. A.	61
35001	Sioux City, Yankton..	Dakota Southern Railroad ..	Sioux City and Yankton	R. A.	61
38001	Denver, El Moro... } Branch, Pueblo... }	Denver and Rio Grande Railroad.	Denver and Alamosa ...	R. A.	10
38004	Cañon City, } Denver, Colorado } Branch, Golden Junction, Georgetown.	Colorado Central Railroad.	Pueblo and Cañon City.	R. A.	6
38006	Cochara, La Veta....	Denver and Rio Grande R. R.	Cheyenne, Boulder, and Denver.	R. A.	13
38007	Denver, Cheyenne....	Denver Pacific Railroad.....	Denver and Georgetown	R. A.	7
41001	Salt Lake City, Ogden.	Utah Central Railroad	Denver and Alamosa ...	R. A.	2
41002	Salt Lake City, York..	Utah Southern Railroad	Cheyenne, Hughes, and Denver.	R. A.	10
41003	Ogden, Franklin.....	Utah Northern Railroad.....	Ogden and Salt Lake...	R. A.	3
43001	Kalama, Wilkerson's..	Northern Pacific Railroad ..	Salt Lake City and York	M. R. M.	7
44001	Portland, Roseburgh..	Oregon and California R. R.	Franklin and Ogden ...	M. R. M.	4
44002	Portland, Saint Joseph	Oregon Central Railroad	Tacoma and Portland ..	R. A.	13
45001	Virginia City, Reno...	Virginia and Truckee R. R..	Portland and Roseburgh	R. A.	20
45002	San Francisco, Soledad	Southern Pacific Railroad....	Portland and Saint Joseph.	R. A.	4
46003	Roseville, Redding....	California and Oregon Railroad.	Reno and Virginia City	R. A.	2
46006	Sacramento City, San Francisco.	California and Pacific Railroad.	San Francisco and Soledad.	R. A.	10
46008	Napa Junction, Calistoga.	do	Redding and Sacramento.	R. A.	17
46010	Lathrop, Goshen.....	Central Pacific Railroad....	Sacramento and San Francisco.	R. A.	5
46014	Huron, Yuma.....	Southern Pacific Railroad ..	Calistoga and San Francisco.	R. A.	10
46011	San Francisco, Cloverdale.	San Francisco and North Pacific Railroad.	Lathrop and Los Angeles.	R. A.	37
46012	Stockton, Milton.....	Stockton and Copperopolis Railroad.	Cloverdale and San Francisco.	R. A.	30
46014	Huron, Yuma.....	Southern Pacific Railroad....	Milton and Stockton...	M. R. M.	9
46016	San Francisco, Duncan's Mills.	North Pacific Coast Railroad	Yuma and Los Angeles	R. A.	24
46023	Woodlawn, Williams.	Northern Railroad	Duncan's Mills and San Francisco.	M. R. M.	9
46027	San Francisco, Alameda.	Central Pacific Railroad.....	Williams and Woodlawn.	M. R. M.	23
			Alameda and San Francisco.	R. A.	13
	Total annual miles.....				

in the United States on the 30th of June, 1878—Continued.

Annual miles of serv. loc.	Number of round trips per week over whole or portion of route.	Number of cars or apartments.	Dimension of cars or apart- ments.		Day or night service.	Mails by express trains.	
			Length.	Width.		Number of round trips over whole route.	Number of round trips per week over portion of route, and between what points.
			<i>Ft. in.</i>	<i>Ft. in.</i>			
94,848	6	1	11 6	6 2	Day		
52,416	6	1	7 2	4 5	do		
31,824	6	1	10 0	7 10	do		
49,640	7	1	13 0	8 6	do		
28,704	6	1	18 2	8 7	do		
21,216	6	1	12 0	6 0	do		
26,408	6	1	14 0	7 6	do		
119,184	6, Oreopolis Junction to Kearney.	2	18 3	8 9	do		6, Plattsmouth to Oreopolis.
24,960	6	1	9 6	7 6	do		
13,104	6	2	18 3	8 9	do		
82,368	6	1	8 9	6 7	do		
		1	12 0	6 6	do		
19,968	6	1	6 0	5 0	do		
38,064	6	2			do		
38,064	6	1	16 0	9 6	do		
105,456	6	1	17 9	7 4	do		6, Cuccharas to El Moro.
32,820	6	1	12 4	6 5	do		
94,170	7	1	9 9	7 5	do		
27,010	7	1	9 9	7 5	do	6	
13,728	6	1	17 9	7 4	do		
77,380	7	1	12 0	7 0	do		6, Denver to Hughea.
52,560	14	1	14 2	8 8	do		
54,750	7	2	15 0	9 0	do		
56,400	7	2	15 0	6 11	Day and night		
84,240	6	2	9 0	7 6	Day		6, Tacoma to Wilkerson's.
124,600	6	2	22 6	9 0	do		
29,952	6	1	7 0	9 0	do		
37,960	7	1	12 0	9 0	Night		
104,390	7	2	17 0	9 0	Day		6, San Francisco to Gilroy.
114,610	7	1	23 6	8 10	Day and night		6, Sacramento to Marysville.
63,720	7	1	10 0	8 10	Day	6	6, Sacramento to Davisville.
42,432	6	1	10 0	8 10	do		6, San Francisco to Napa Junction.
282,510	7	2	31 6	8 11	Day and night		
		4	23 6	8 10	do		
28,080	6	1	12 3	8 11	Day		
18,720	6	1	10 0	8 9	do		6, Stockton to Peters.
181,040	7	2	11 9	8 5	Day and night		
49,920	6	2	8 0	6 0	Day		6, San Rafael to San Francisco.
24,336	6	1	12 4	8 10	do		
37,960	26	2	9 6	8 11	do		
		1	9 6	8 11	Reserve		

-40,568.891

15 P M G

REPORT

OF THE

SUPERINTENDENT OF RAILWAY MAIL SERVICE.

REPORT
OF THE
SUPERINTENDENT OF RAILWAY MAIL SERVICE.

POST-OFFICE DEPARTMENT,
OFFICE GENERAL SUPERINTENDENT RAILWAY MAIL SERVICE,
Washington, D. C., November 1, 1878.

SIR: The appropriation for

RAILWAY POST-OFFICE CLERKS

for the fiscal year ending June 30, 1879, is \$1,325,000.

From the tables accompanying these estimates the increase in the force and expenditures for the various years will be seen, as also the large increase in the mails now passing over the various railroads, and the large increase in the proportion of the same handled on the postal cars.

This increase of mail handled is necessitated by the improvement that is made each year in the connections between the different railroads, in the running schedules of the trains, and the improvement in the system of distribution. Each of these makes the postal service of more advantage to the public, and at the same time increases the work required of the employés of the service.

The registration of third-class matter—a great convenience to the public—will largely increase the work, already onerous, in connection with the handling of registered mail, in much greater proportion than the number of pieces handled, as it, being bulky matter, cannot of course be handled and recorded as expeditiously or conveniently as can the registered letters. This increase in the work in railway post-offices will in a measure be offset by employing route-agents on all lines to perform the local service. Although the distinction between these different classes of employés of the railway mail service should be abandoned, yet, so long as it is continued, each class of employés should be confined to its particular work.

With a view to making correct estimates for the ensuing fiscal year, each line of railway post-offices has been taken up in detail, and the probable demand for extension considered. It is, therefore, respectfully recommended that you ask for an appropriation of \$1,400,000 for the fiscal year ending June 30, 1880.

ROUTE-AGENTS.

The appropriation for route-agents for the fiscal year ending June 30, 1879, is \$1,030,000.

The placing of route-agents upon lines where there is railway post-office service, to perform the local or way work, has necessitated a very large increase in this class of service. In addition to this, each year the service upon lines of railroad is being placed upon the express or fast

trains and taken off the local or way trains. This gives much better satisfaction to the public in expediting the mails, not only local, but through, as this class of trains make all the important connections which the other trains miss. It, however, necessitates that the same amount of work be done in much less time, thus making an increased force necessary.

There is, too, a growing demand for additional or double daily service on the more important route-agent lines. As in the railway post-office service each line has been considered separately, and the probable increase and extension of the service estimated in detail, it is therefore respectfully recommended that you ask for an appropriation of \$1,125,000 for the fiscal year ending June 30, 1880.

MAIL-ROUTE MESSENGERS.

The appropriation for mail-route messengers for the present fiscal year is \$171,000.

This amount, although all that was asked for, is insufficient to meet the demands of the public, and there are many routes upon which it has been impossible to place service. This was caused by the more rapid increase in railroad mileage than was anticipated.

The public demand, and it is a demand that should be met, that wherever there is a railroad there should be service by agents of the department. Railroad service without an agent is, for mail purposes, not as advantageous as stage service, it being impossible to have an exchange direct of the mails between all the offices on that route without making up and forwarding a pouch from each office on the route to each other office. This service, too, is chiefly for the more thinly-settled portions of the country, where they do not enjoy the fullest advantages of the postal service—the greater reason why all that can be should be given.

As in the other estimates, all the routes, probable increase and extensions, have been considered in detail. It is therefore recommended that you ask for an appropriation of \$200,000 for the fiscal year ending June 30, 1880.

LOCAL AGENTS.

The appropriation for local agents for the present fiscal year is \$115,000.

The demands on this class of employés increase probably faster than on any other. The quickening of the schedules on railroads, the close connections that are made at junctions where there are transfers, necessitates that the mails be handled at the depots instead of passing through post-offices, as is the custom wherever time will permit. If there is not a local agent this work is performed by employés of the different railroads, who are in no wise responsible to the department, and who are in continual dispute as to who will look after it, and who think it is an addition to their work for which they are not paid; consequently it is badly performed and the public suffer.

There should be a local agent at every junction where there are mails of any importance to separate and dispatch in different directions.

The increased benefit to the public would be far greater than could be given by an equal expenditure in any other branch of the service.

After an examination into the requirements of the service in detail, I would respectfully recommend that you ask for an appropriation of \$150,000 for local agents for the fiscal year ending June 30, 1880.

SALARIES.

In my last annual report I called attention to the present salaries of the employes of this service, varying from \$900 to \$1,300 per annum on the heavier routes and below \$900 on the lighter routes.

If this salary represented the net amount received by these employes it might then be considered fair; but it does not; for out of this must come their expenses when absent from home attending to their duties. In this expense there is no uniformity. His absence, and consequently his expense, depend on the importance of the route, the length of the run, the schedule, &c. The more important and heavier the route and the work, the longer time the employe has to absent himself, and the less opportunity he has to take advantage of any little circumstance which would inure to his pecuniary benefit. The more he has the interest of the service at heart, the greater the sacrifice he is called upon to make for its benefit.

In fact, the success and growth of this service and the efficiency it has attained has been secured almost entirely by the efforts of those holding subordinate positions, who have, with comparatively small salaries, devoted their time and energies to it, changing from one place to another as their services were demanded, filling in where the exigencies of the service required regardless of the sacrifices they were called on to make, and which could not be compensated for except by such occasional promotion as it has been possible to make. While some have received their hard-earned and merited promotion, there are still many who cannot, under the present organization, have their services thus recognized.

In the present organization, one general superintendent, two assistant superintendents, and nine division superintendents are expected to keep the system in perfect running order on 95,000 miles of railroad and steamboat routes, over which there is performed nearly 100,000,000 miles of annual service, superintend and regulate the workings of 2,608 employes on these routes, regulate and correct the distribution at all post-offices. How this has been done can best be judged from the report of mails distributed and errors made.

In this connection, it should be remembered that at least twice in each year there is a general change in the railroad schedules, and many less important ones each month, all of which must be anticipated, and the effect of each on the forwarding of the mails provided for.

CHIEF HEAD CLERKS.

After all these changes in distribution and other information has been tabulated and put in convenient form for reference by the employes on the line, it has been necessary to detail employes to examine the clerks, to see that they keep informed of all these changes, and that the duty assigned to them is properly performed; in other words, to superintend the work on each particular route or group of routes. To do this, it is necessary that he travel constantly, and for this the utmost that can be paid is \$1,400 per annum, out of which all his traveling-expenses must come. It does seem that to provide for this a grade of officers, to be styled chief head-clerks, should be established, with pay not to exceed \$1,400 per annum and actual traveling-expenses not exceeding \$3 per day.

CLASSIFICATION.

The question of a change in the classification was discussed last year. Now that the service is brought under one general management, and

each employé is required to work under the same general instructions and schemes, the only distinction in fact being the quantity of work, it seems that distinctions obsolete in practice should be abandoned. The clerks could be more uniformly graded, avoiding the dissatisfaction that now arises from the distinction in designation and pay where there is none in the work. It would, therefore, be better for the service, and prove more economical, should the appropriation be made in gross for these four classes, designating them as postal clerks, and allowing, say, five classes: First class, pay not to exceed \$900 per annum; second class, pay not to exceed \$1,000 per annum; third class, pay not to exceed \$1,200 per annum; fourth class, pay not to exceed \$1,400 per annum; assistant postal clerks, pay not to exceed \$800 per annum.

Should this be done, the third and fourth class would be employed only where the necessity of the service requires railway post-office cars, and the others upon all other routes, and classed, as now, according to distance run and work performed.

The accompanying Tables A and B are an exhibit of the increase of this branch of the postal service:

TABLE A.—Statement for the years 1870 to 1878, inclusive, showing the number of railway post-office clerks, route-agents, mail-route messengers, and local agents employed; amount of annual compensation to each class; and the percentage of increase and decrease in number and annual compensation.

Year.	Number of railway post-office clerks in service at end of each fiscal year.	Increase in railway post-office clerks.	Increase per cent.	Annual compensation.	Increase of annual compensation.	Decrease of annual compensation.	Increase per cent. of annual compensation.	Decrease per cent. of annual compensation.
1870.....	375			\$442,800 00				
1871.....	513	138	36.8	649,400 00	\$206,600 00		46.72	
1872.....	642	129	25.15	821,600 00	172,200 00		25.53	
1873.....	752	110	17.13	941,000 00	119,400 00		12.36	
1874.....	830	98	13.03	1,058,900 00	117,900 00		12.45	
1875.....	901	51	6.00	1,163,600 16	105,400 16		9.96	
1876.....	1,042	141	15.65	1,223,750 19	60,150 03		5.16	
1877.....	1,051	9	0.86	1,223,569 41		\$180 78		0.01
1878.....	1,081	30	2.85	1,238,392 71	14,723 30		1.20	

Year.	Number of route-agents in service at end of each fiscal year.	Increase in route-agents.	Increase per cent.	Annual compensation.	Increase of annual compensation.	Decrease of annual compensation.	Increase per cent. of annual compensation.	Decrease per cent. of annual compensation.
1870.....	587			\$574,600 00				
1871.....	624	97	16.53	671,220 00	\$96,620 00		16.71	
1872.....	764	80	11.69	737,820 00	66,540 00		9.91	
1873.....	862	98	12.83	822,140 00	90,420 00		12.25	
1874.....	936	74	8.58	896,680 00	68,440 00		8.26	
1875.....	927	51	5.45	896,390 52		\$299 48		0.32
1876.....	1,017	30	2.95	940,151 97	43,761 45		4.64	
1877.....	1,065	48	4.72	959,660 86	19,508 89		2.07	
1878.....	1,143	78	7.32	993,811 51	34,150 65		3.55	

TABLE A.—Statement for the years 1870 to 1878, inclusive, &c.—Continued.

Year.	Number of mail-route messengers in service at end of each fiscal year.	Increase in mail-route messengers.	Decrease in mail-route messengers.	Increase per cent.	Decrease per cent.	Annual compensation.	Increase of annual compensation.	Decrease of annual compensation.	Increase per cent.	Decrease per cent.
1870.	78					\$45,710 00				
1871.	103			32.05		61,910 00	\$16,200 00		37.44	
1872.	146			41.75		69,910 00	28,000 00		45.23	
1873.	171			17.12		106,740 00	16,830 00		19.72	
1874.	211			23.39		136,540 00	29,800 00		27.92	
1875.	225	14		6.64		129,999 35		\$6,540 65		4.79
1876.	219		6		2.67	147,152 27	17,152 27		13.19	
1877.	248	29		13.24		147,598 61	446 34		00.33	
1878.	241		7		2.82	154,375 54	6,776 93		4.52	

Year.	Number of local mail agents in service at end of each fiscal year.	Increase in local mail agents.	Decrease in local mail agents.	Increase per cent.	Decrease per cent.	Annual compensation.	Increase of annual compensation.	Decrease of annual compensation.	Increase per cent.	Decrease per cent.
1870.	66					\$46,230 00				
1871.	82			24.24		58,430 00	\$12,200 00		26.39	
1872.	95	13		15.85		69,916 00	10,786 00		18.46	
1873.	110	15		15.79		82,896 00	13,680 00		19.76	
1874.	124	14		12.73		94,710 00	11,814 00		14.25	
1-75.	125	1		00.80		89,980 70		\$4,789 30		4.99
1876.	137	12		9.6		101,813 97	11,832 57		13.15	
1877.	136		1		00.73	105,718 70	3,905 43		3.83	
1878.	134	7		5.14		109,041 64	3,322 91		3.14	

NOTE.—The annual compensation for the years 1875, 1876, 1877, and 1878 is the amount actually expended, while the annual compensation for the previous years is the amount estimated upon the basis of the number of clerks, route-agents, &c., in service during those years.

TABLE B.—Statement for the years 1870 to 1878, inclusive of steamboat and railroad routes, miles of annual service on the same, also miles of railway post-office service and miles of annual service thereon, together with the increase and decrease per cent.

Year.	Miles of steamboat routes.	Increase of miles of steamboat routes.	Decrease of miles of steamboat routes.	Increase per cent.	Decrease per cent.	Miles of annual service on steamboat routes.	Increase in miles of annual service on steamboat routes.	Decrease in miles of annual service on steamboat routes.	Increase per cent.	Decrease per cent.
1870	20,695					4,122,385				
1871.	20,334		261		1.74	4,684,778	562,393		13.64	
1872.	18,860		1,474		7.25	4,308,436		376,342		8.03
1873.	16,762		2,098		11.12	3,947,785		360,651		8.37
1874.	16,634	1,872		11.17		4,078,725	130,940		3.32	
1875.	15,788		2,846		15.27	3,958,852		119,873		2.94
1876.	14,883		905		5.73	3,704,533		254,319		5.14
1877.	17,685	2,802		18.83		4,038,238	333,705		9.01	
1878.	18,072	387		2.18		4,629,298	591,060		14.63	

TABLE B.—Statement for the years 1870 to 1878 inclusive, &c.—Continued.

Year.	Miles of railroad service.	Increase of miles of railroad service.	Increase per cent.	Miles of annual service on railroad routes.	Increase in miles of annual service on railroad routes.	Increase per cent.
1870.....	43,727			47,551,970		
1871.....	49,834	6,107	13.96	55,557,048	8,005,078	16.83
1872.....	57,911	8,077	16.21	62,491,749	6,934,701	12.47
1873.....	63,457	5,546	9.49	65,621,445	3,129,696	5.01
1874.....	67,734	4,277	6.74	72,460,545	6,839,100	10.42
1875.....	70,063	2,329	3.47	75,154,910	2,694,365	3.52
1876.....	72,348	2,285	3.23	77,741,172	2,586,262	3.44
1877.....	74,546	2,198	3.04	85,358,710	7,617,538	9.30
1878.....	77,119	2,573	3.45	92,130,395	6,771,685	7.92

Year.	Miles of route on which there is railway post-office service.	Increase of miles of route of railway post-office service.	Decrease of miles of route of railway post-office service.	Increase per cent.	Decrease per cent.	Miles of annual service by railway post-office.	Increase of miles of annual service by railway post-office.	Increase per cent.
1870.....	8,952					6,509,000		
1871.....	11,208	2,256		25.83		10,072,540	3,563,540	54.75
1872.....	14,117	2,909		25.85		12,286,856	2,214,316	22.34
1873.....	14,866	749		5.30		12,747,625	460,769	3.61
1874.....	16,414	1,548		10.41		14,307,632	1,560,007	10.89
1875.....	16,934	518		2.16		14,639,785	332,153	2.27
1876.....	17,713	781		4.61		15,309,915	670,130	4.35
1877.....	17,761	48		0.27		16,925,050	1,615,135	9.55
1878.....	16,980		781		4.39	17,953,910	1,028,860	5.78

Year.	Total miles of railroad and steamboat routes.	Increase of miles of railroad and steamboat routes.	Decrease of miles of railroad and steamboat routes.	Increase per cent.	Decrease per cent.	Miles of annual service on railroad and steamboat routes.	Increase of miles of annual service on railroad and steamboat routes.	Increase per cent.
1870.....	64,422					51,674,355		
1871.....	70,168	5,746		8.92		60,241,896	8,567,541	16.52
1872.....	76,771	6,603		9.41		66,800,185	6,558,289	10.49
1873.....	80,219	3,448		4.49		69,569,920	2,769,735	4.14
1874.....	86,368	6,149		7.66		76,539,970	6,970,050	10.02
1875.....	85,871		497		0.57	79,113,769	2,574,899	3.26
1876.....	87,231	1,360		1.58		81,445,705	2,331,936	2.85
1877.....	92,231	5,000		5.73		89,396,948	7,951,243	8.78
1878.....	95,191	2,960		3.21		96,749,683	7,352,735	7.52

The increase in the miles of railroad routes in operation June 30, 1878, over that in operation June 30, 1877, was three and forty-five one-hundredths per cent. (3.45 per cent.); the increase in miles of annual service performed over the same was seven and ninety-two one-hundredths per cent. (7.92 per cent.); the increase in the total miles of railroad and steamboat routes was three and twenty-one one-hundredths per cent. (3.21 per cent.); the increase in miles of annual service performed over the same was eight and twenty-two one-hundredths per cent. (8.22 per cent.).

The miles of routes on which there was railway post-offices was decreased four and thirty-nine one-hundredths per cent. (4.39 per cent.), while the annual service performed on these routes was increased five and ninety-six one-hundredths per cent. (5.96 per cent.).

The increase in the miles of route on which there is route-agent and mail-route messenger service was thirteen and twelve one-hundredths per cent. (13.12 per cent.); the increase in the miles of annual service performed was thirteen and twelve one-hundredths per cent. (13.12 per cent.).

It will be seen that the miles of annual service increases in much greater proportion than the miles of route; this is due to the general demand for increased service in the different routes. While this is so, the increased expenditure is less than the increase of the service, each employé being required to perform more work.

The increase in the number of clerks and agents and in the expense of performing the service has not shown a corresponding ratio.

The service annually performed by railway post-office clerks has increased five and ninety-six one-hundredths per cent. (5.96 per cent.); the annual expenditures have increased but one and twenty one-hundredths per cent. (1.20 per cent.).

The service annually performed by route-agents and mail-route messengers has increased thirteen and twelve one-hundredths per cent. (13.12 per cent.).

The expenditure for route-agents and mail-route messengers has increased three and fifty-five one-hundredths per cent. (3.55 per cent.) and four and fifty-two one-hundredths per cent. (4.52 per cent.) respectively.

SERVICE ON RAILROADS.

There has been a vast improvement in the service during the last fiscal year. Improved schedules and car accommodations have been generally obtained from the railroads. In the New England section, new cars have been built and are now running over the two lines via Springfield and Providence between Boston and New York.

The New York, New Haven and Hartford Railroad has established a new train over a portion of the road, making connections not heretofore obtained.

The New York Central and Hudson River Railroad have abandoned the position held by them at the time of the last annual report, and now we have four daily services over a portion of the road and three through—one of which is on a special mail and express train run at an extra rate of speed.

The Pennsylvania Railroad Company have rebuilt their entire equipment and added very largely to it; they have established two special trains for the accommodation of the mails between New York and Philadelphia and one between Philadelphia and Pittsburgh, so that now we have as nearly a perfect service as it is possible to obtain.

New service has been established on the Pittsburgh, Fort Wayne and Chicago Railroad between Pittsburgh and Chicago; and additional service on the lines of the Pittsburgh, Cincinnati and Saint Louis Railroad between Pittsburgh, Cincinnati, and Saint Louis.

New service has been established between Cincinnati and Louisville, and on the lines leading out of Saint Louis to the South and West, and out of Chicago to the North and West.

The schedules from Washington and Cincinnati to the South have been materially shortened, so that the mails to the Southern cities are advanced practically an average of twelve hours.

Most of this is the result of negotiations that were pending at the time my last annual report was submitted, and is the result of the judicious use of the fund placed at the disposal of the Postmaster-General to obtain additional facilities upon the trunk lines.

If the relations at present existing between the railroad companies and the department could but be maintained, there would be little difficulty in the future in maintaining the present efficiency of the service, depending as it does, in a large measure upon the facilities afforded on the different roads.

It does not seem possible, however, that the department can obtain additional, or even maintain its present service, and at the same time reduce the compensation to the roads furnishing all possible accommodations for the same, as it will be compelled to do unless some provision is made to continue the allowances made to these railroads out of the special fund placed at the disposal of the Postmaster-General to obtain additional facilities for the postal service.

Notice has been given those roads to which were made extra allowance that unless some provision is made by Congress it would be discontinued after January 1, 1879. What their action will be it is impossible to foretell. Neither does it seem possible to write or say more in regard to the readjustment of the compensation to railroads.

The present method is unjust to the railroad and to the department. Unjust to the road because it does not take into consideration the element space, without which the distribution of the mails in transit cannot be made, and to the furnishing of which the roads make the most objection; to the department because it takes into consideration the element of weight principally. This increasing, as it does, about 15 per cent. each year, increasing the amount necessary to pay the railroads about 10 per cent., will soon make the item of compensation to railroads the largest item of expenditure, forcing either a reduction in the compensation of a certain per cent. each year in the future as in the past, and perpetuating the present disturbed state, or else as the amount paid increases all opposition to furnishing the service required by the department will be quieted by enormously overpaying some roads and but fairly paying other roads.

The passage of the bill recommended by the commission appointed to examine into this matter and report upon the same, coinciding as it does with the recommendations made by all those who have had practical experience in the matter, would afford a satisfactory solution of the vexed question and be a measure of economy as well.

MAIL DISTRIBUTED, ERRORS MADE, &c.

Particular attention is called to the statement of error-slips, mail distributed, &c., Tables C and D, attached hereto.

TABLE C.—Statement of mail distributed on the various railway post-office lines of the railway mail service during the year ending June 30, 1878.

Division.	Date.		Months.	Number of letter packages distributed.	Whole number of letters distributed.	Number of sacks of paper mail distributed.
	From—	To—				
First (estimated)	July 1, 1877	June 30, 1878	12	2,935,604	146,780,800	866,291
Second	July 1, 1877	June 30, 1878	12	3,626,188	181,309,400	548,216
Third	July 1, 1877	June 30, 1878	12	1,028,984	51,449,800	150,178
Fourth	July 1, 1877	June 30, 1878	12	1,225,867	64,893,350	250,104
Fifth	July 1, 1877	June 30, 1878	12	5,305,780	285,289,000	854,222
Sixth	July 1, 1877	June 30, 1878	12	6,841,820	342,091,000	808,124
Seventh	July 1, 1877	June 30, 1878	12	2,617,699	130,824,950	592,453
Eighth	July 1, 1877	June 30, 1878	12	904,926	45,246,300	141,661
Ninth	July 1, 1877	June 30, 1878	12	3,457,777	172,888,850	433,307
				23,004,645	1,400,232,250	4,074,847

TABLE C.—Statement of mail distributed on the various railway post-office lines—Cont'd.

Division.	Date.		Months.	Whole number of pieces of paper mail distributed.	Whole number of letters and pieces of paper mail distributed.	Number of packages of registered mail matter.
	From—	To—				
First (estimated)	July 1, 1877	June 30, 1878	12	53, 285, 200	200, 038, 400	855, 408
Second	July 1, 1877	June 30, 1878	12	109, 963, 200	291, 272, 600	1, 060, 403
Third	July 1, 1877	June 30, 1878	12	32, 035, 200	89, 481, 400	509, 468
Fourth	July 1, 1877	June 30, 1878	12	50, 020, 800	114, 314, 150	895, 851
Fifth	July 1, 1877	June 30, 1878	12	170, 857, 600	436, 146, 800	1, 583, 295
Sixth	July 1, 1877	June 30, 1878	12	173, 227, 600	515, 318, 600	2, 314, 522
Seventh	July 1, 1877	June 30, 1878	12	100, 491, 800	231, 376, 750	1, 138, 876
Eighth	July 1, 1877	June 30, 1878	12	22, 332, 000	73, 57, 900	217, 587
Ninth	July 1, 1877	June 30, 1878	12	90, 661, 400	263, 550, 250	674, 623
				814, 848, 400	2, 215, 080, 650	9, 250, 038

TABLE D.—Statement of errors made by railway post-office clerks and route agents in the several divisions of the railway mail service during the year ending June 30, 1878.

Division.	Number of incorrect slips returned.	Number of errors on incorrect slips.	Number of packages missent.	Number of packages misdirected.	Number of pouches missent.	Number of sacks missent.
First	9, 503	13, 934	528	435	11	58
Second	48, 388	83, 790	694	435	11	18
Third	5, 276	7, 018	251	20	5	49
Fourth	15, 752	24, 079	611	58	23	41
Fifth	78, 538	164, 927	1, 097	252	36	71
Sixth	82, 565	130, 263	2, 162	297	56	60
Seventh	42, 782	67, 164	1, 095	58	21	...
Eighth	3, 651	4, 359	...	...	...	...
Ninth	64, 590	129, 608	1, 761	...	...	...
	351, 126	625, 662	8, 241	...	...	...

RECAPITULATION.

Number of letters and pieces of paper mail distributed during year	2, 215, 080, 650
Number of errors made in distribution of same	625, 662
Number of letters and pieces of paper mail distributed to each error	3, 540

The report shows a very large increase in the amount of mail handled. This is due to the increased facility for distribution, the increased mileage of railway post-offices, and the more perfect method of obtaining the records.

The number of pieces of mail deposited in the post-offices for dispatch during the year was about 1,200,000,000, nine-tenths of which passes over some railroad route before it reaches its destination; of this about one-third is made up in city packages at the post-offices where deposited, and not opened until it arrives at its destination. About two-thirds, or 720,000,000 pieces, were each handled separately about 3 times by the clerks on the railway post-offices.

The record shows that while the equivalent to 2,215,000,000 separate and individual pieces of mail was distributed by the clerks, but 625,000 were missent, or one piece missent in each 3,540 distributed—last year it was one in each 2,500.

A larger proportion of the actual errors made were obtained this year than last, for the reason that each employé was given credit for errors checked against others. This was found necessary from the fact that there was a great difference in the number of errors checked by employés under precisely similar circumstances.

CASE EXAMINATIONS.

This increased proficiency is due to the case examinations. These have been pushed vigorously during the year. Attention is called to the report of case examinations, table E.

TABLE E.—Statement of case examinations of railway post-office clerks and route-agents in the several divisions of the railway mail service for the year ending June 30, 1878.

D n.	Whole number of examinations.	Whole number of cards handled.	Number of cards correct.	Number of cards incorrect.	Number not known.	Average per cent. correct.	Remarks.
First	388	212,460	210,029	6,273	2,158	96.14	93 employés made 90 percent. and over in 2,000 offices and over.
Second	943	1,543,680	815,594	96,732	631,354	52.83	
Third	133	92,393	90,112	1,923	358	97.53	215 employés not examined during the year on account of having made over 90 per cent. previously.
Fourth	363	188,720	162,645	15,365	10,710	86.16	
Fifth	876	644,722	559,359	35,795	49,568	86.76	
Sixth	367	408,973	309,365	9,179	90,429	75.65	
Seventh	356	245,954	203,085	18,369	24,500	82.57	
Eighth	25	42,807	42,544	163	51	99.49	
Ninth	528	611,073	419,132	20,439	171,512	68.58	

RECAPITULATION.

Total number of examinations	3,979
Total number of cards handled	3,996,788
Total number of cards correct	2,811,369
Total number of cards incorrect	204,343
Total number not known	960,640
Average per cent. correct of all divisions	70.35

The mean per cent., though high, does not give an exact idea of the proficiency of the clerks. New appointees on the probationary period of six months are examined each month, and of course these averages are low, while the examinations are made at less and less frequent intervals as the proficiency of the employé is shown. After passing a certain point he is examined at very long intervals, unless there is reason to believe, from the report of errors made, that he is not keeping up with the changes or to his standard.

CASUALTIES.

The following list of casualties will give some approximate idea of the continual risk to which the employés of this service are exposed; hardly a week passes but some employé is killed, oftentimes in the most horrible manner—maimed for life, which is worse—or so injured that for weeks and months he can perform no service. For all this, there is no compensation. There is no provision to fill his place while recovering from injuries, except by requiring his fellow-clerks to perform his duties in addition to their own, which are already heavy.

Some remedy should be provided for this. Pay for a certain period should be allowed for all killed in service. Pension for all injured, to be in proportion to their injuries and the length of time they may be inca-

pacitated for the performance of duty. It is hardly possible that any other argument than the list of casualties following is needed to impress Congress with the justice of this.

TABLE F.—*Statement of casualties in the railway mail service during the fiscal year ending June 30, 1878.*

1877.

August 10.—Bangor and Boston railway post-office collided with freight-cars on side track at Seabrook, N. H., caused by misplaced switch. Head Clerk Wilbur F. Crawford seriously injured. No mail damaged.

September 15.—Williamsport and Baltimore railway post-office collided with freight-train near Muncy Station, Pa., and the wreck fired by explosion, &c., of tanks of oil, of which the latter train was composed. Engineer and express messenger killed, but no postal clerk seriously injured. Pouches for Lock Haven, Williamsport, Elnira and Williamsport agent, and Erie, Pa., were entirely destroyed; also four registered packages, and the mail-keys, commissions, stamps, clothes, and personal effects of the clerks.

September 21.—New York Central and Hudson River Railroad, Chicago express, collided with freight-train near Rome, N. Y. Both engines, mail, and baggage-cars completely wrecked. Head Clerk John S. Tunnard and a fireman and brakeman killed, and Postal Clerks Frank C. Roberts, George W. Fitch, William E. Earle, and William H. S. Sweet seriously injured, as also were many railroad employes and passengers.

Some of the registered matter was badly mutilated, but no mail known to be lost.

September 27.—Chicago and Lake Huron Railroad, Port Huron and Valparaiso route. Near Vicksburg, Mich., mail-car and two coaches jumped the track and ran into embankment, and were completely wrecked. Route Agent J. J. Larmour slightly bruised, but no mail lost or injured.

September 28.—Piedmont Air Line Railroad, Danville and Charlotte route. Route Agent John A. Palmer, while in the act of catching and delivering mail at Linwood Station, had his leg very seriously injured by coming in contact with a piece of iron attached to the crane.

October 4.—Pennsylvania Railroad, Belvidere Division. Near Milford, N. J., a broken culvert caused train to be thrown from track and precipitated into creek below, and the baggage-car with contents were washed out into the river. There were five pouches of mail in the car, only one of which was recovered, the contents (some six or eight letters) thoroughly saturated with water.

October 10.—Washington, D. C. A lantern in mail-wagon exploded, partly burning two canvas sacks containing about four pounds papers, *i. e.*, the Record and Gazette, published in that city. These papers were, however, replaced by the publishers, and the subscribers supplied.

October 16.—New York and Albany railway post-office. In attempting to catch at New Hamburg the pouch fell under train, and was dragged to Poughkeepsie, scattering the contents along the track. It is supposed that all the mail was recovered.

October 17.—New York and Washington railway post-office. Postal car No. 6 took fire from a spark from the engine, and was so badly burned as to be unfit for service. No mails damaged.

October 19.—Fort Wayne, Muncie, and Cincinnati, and White River Valley Railroad. In attempting to deliver mail at Laurel Station the pouch accidentally fell under train and was badly cut. No mail, except a few papers, injured.

December 1.—Shreveport and New Orleans mail-packet Lotus, accidentally fired and burned to water's edge and sunk. All the mail was lost, including three registered packages containing twenty dollars.

December 3.—Louisville, New Albany and Chicago Railroad. Mail-car overturned and burned. No mail lost or damaged.

1878.

January 5.—Omaha and Ogden railway post-office. Two sacks paper mail accidentally took fire from stove, and contents of one sack partially damaged.

January 19.—New York Central and Hudson River Railroad. In delivering box of registered stamped envelopes from train at New Hamburg, N. Y., the box was broken and contents scattered along track. Envelopes to the value of three dollars and twenty-three cents (\$3.23) destroyed.

January 23.—Train thrown from track near Decherd, Tenn., and precipitated down embankment, wrecking mail-car. No mail seriously damaged, except one letter charred by fire.

January 27.—Cleveland and Indianapolis Railroad. Pouch thrown off at Crestline, Ohio, fell under train and was dragged to Vernon Junction, and part of contents badly mutilated.

January 30.—Near Ontario, Ind., pouch accidentally caught fire from stove. No mail destroyed.

February 4.—Saint Louis, Kansas City and Northern Railroad. Jacob Sands, route-agent between Ottumwa and Moberly, had his hand badly injured by the sudden closing of the car-door.

February 9.—Pittsburgh and Cincinnati railway post-office.—Engine thrown from track, and postal-car considerably damaged. No mail lost or injured.

February 11.—Louisville and Nashville railway post-office. Train jumped the track between Big Sandy and Springfield, Tenn., ditching engine, postal and baggage cars. No mail lost or injured.

February 14.—New York and Chicago railway post-office. Registered pouch accidentally took fire from lighted candle while trimming the lamps. Pouch slightly damaged, but contents not materially injured.

February 18.—Chicago, Ill. In transferring mail at depot a truck, wheel broke and three sacks paper mail fell under a passing train. Mail all saved except about six papers and a pocket-book, which were destroyed.

February 21.—New York and Chicago railway post-office. When near Carthage Landing, N. Y., ran into a freight-train, wrecking both trains. No mails lost or injured.

February 25.—Baltimore and Ohio Railroad. Pouch thrown from train at Elkridge Landing, Md., fell under train and was destroyed, but contents were not injured.

February 25.—Pittsburgh and Chicago railway post-office. In making the catch from crane at East Palestine, Mr. Jos. F. Talcot, postal clerk, was very seriously injured by being struck by a large wooden box of registered matter, which had been placed in tie-sack on crane by the postmaster.

February 27.—New York and Chicago railway post-office. Near Weedsport, N. Y., ran into freight-train, ditching engine, postal and baggage cars. Postal clerks W. H. Atwell and F. L. Southwick considerably injured. No loss or damage to mails.

March 5.—New York and Chicago railway post-office. Pouch thrown off at Conneaut, Ohio, fell under train and was slightly torn, but no mail lost or injured.

March 6.—Memphis, Tenn. Steamer City of Chester destroyed by fire with mail consisting of about 200 letters, money order for ten dollars (\$10), five dollars (\$5) in cash, and one registered package containing twenty-five dollars (\$25).

March 9.—Dunreith, Ind. Sack dropped from catcher and fell under train. Sack and contents, consisting of about twelve pounds mail, completely destroyed.

March 11.—Lake Shore and Michigan Southern Railroad. Postal (storage) car burned near Edgerton, Ohio. Car and contents, consisting of thirty (30) sacks paper mail, and twenty-nine (29) cases stamped envelopes, entirely destroyed.

March 20.—New Orleans and Port Eads River route. Pouch from Belair, La., lost overboard by one of the officers of the boat, and was not recovered. The contents consisted of about six letters and one paper.

April 7.—Chicago and Northwestern Railroad, Madison division. Train fell through bridge near Reedsburgh, Wis. Engine and baggage-car with contents, consisting of seven pouches mail, and perhaps a few papers, entirely destroyed by fire.

April 10.—Steamer Col. A. P. Kouns struck a snag in Red River, causing her to sink in about fifteen minutes. Mail all saved except a few letters and the paper mail for Alexandria and Natchitoches, La.

June 1.—Louisville and Nashville railway post-office trains Nos. 1 and 4 collided near Sonora, Ky. Both engines, both postal cars, and one baggage-car entirely wrecked, and several coaches badly damaged. Two persons killed and several wounded. Among the latter were postal clerks S. A. McKenzie (who has since died from his injuries), J. K. Hoskins, Clay Newland, E. E. Winters, and Route-agent S. St. John. Much of the mail was badly damaged by water and steam, but none supposed to be lost.

June 24.—Atlantic and Gulf Railroad. Train between Savannah and Live Oak, Fla., was run into by an extra freight-train. Baggage-car demolished and Route-agent C. P. Craft slightly injured. No loss or damage to mails.

June 29.—New York and Washington railway post-office. Cross-ties placed on track near Wilmington, throwing engine from track and badly damaging the postal car. Postal Clerk R. G. Whiting severely cut. No loss or damage to the mails.

FIRE AND LIGHT.

I would respectfully renew my recommendation that a small sum—say \$500—be appropriated for experiment in light. It is becoming more and more essential each year that some improved method of lighting postal cars be adopted.

UNIFORMS.

The adoption of a uniform dress to be worn by all employés when on duty, has worked very satisfactory. The opposition it met with at first has gradually disappeared. It is, however, necessary that some penalty be provided for the wearing of the same by unauthorized parties.

CONCLUSION.

In closing this report it is but just that some reference be made to the zeal and interest that has been shown toward this service by all con-

nected with it. On their fidelity are dependent interests beyond estimate, and they have fully met the expectation of the department and the requirements of the public. If we have, as we claim, a postal service to which there is none superior, then to these employés is due their share of the credit. It is to be hoped that this will be recognized not only by the public but by Congress.

Very respectfully,

THEO. N. VAIL,
General Superintendent.

Hon. THOS. J. BRADY,
Second Assistant Postmaster-General.

REPORT

OF THE

THIRD ASSISTANT POSTMASTER-GENERAL.

REPORT
OF THE
THIRD ASSISTANT POSTMASTER-GENERAL.

POST-OFFICE DEPARTMENT,
OFFICE OF THIRD ASSISTANT POSTMASTER-GENERAL,
Washington, November 1, 1878.

SIR: I have the honor to submit the following report of the operations of this office for the fiscal year ending June 30, 1878, and to invite your attention to the subjoined tables, numbered from 1 to 17, inclusive, forming part of the same, viz:

No. 1. Estimates of the expenditures and revenues of the Post-Office Department for the fiscal year ending June 30, 1880, with explanatory papers, marked No. 1a to No. 1k.

No. 2. Statement showing appropriations and expenditures by items for fiscal year ending June 30, 1878.

No. 3. Statement exhibiting the receipts and expenditures under appropriate heads, by quarters, for the fiscal year ended June 30, 1878, compared with the fiscal year ended June 30, 1877.

No. 4. Receipts and disbursements at Treasury depositories during the fiscal year ended June 30, 1878.

No. 5. Receipts and disbursements at depository post-offices on account of the fiscal year ended June 30, 1878.

Nos. 6 and 7. Postage-stamps, stamped envelopes, newspaper-wrappers, and postal cards issued during the fiscal year ended June 30, 1878.

No. 8. Statement of the official postage-stamps and stamped envelopes furnished each of the executive departments during the fiscal year ended June 30, 1878.

No. 9. Statement showing the increase in the issues of postage-stamps, stamped envelopes, newspaper-wrappers, and postal cards for the year ended June 30, 1878, over those of the preceding year.

No. 10. Statement showing amount of dead mail-matter treated in the Division of Dead Letters during the fiscal year ended June 30, 1878.

No. 11. Statement showing the disposition of opened letters during the year ended June 30, 1878.

No. 12. Statement showing the amount, classification, and disposition of unmailable matter received during the year ended June 30, 1878.

No. 13. Statement showing the number of foreign dead letters received and disposed of during the fiscal year ended June 30, 1878.

No. 14. Statement showing the detailed classification and disposition of dead letters containing valuable inclosures for the fiscal year ended June 30, 1878.

No. 15. Statement showing the number of registered letters transmitted through the mails from each State and Territory in the United States during the fiscal year ended June 30, 1878.

No. 16. Statement showing the operations of the registered-letter

system at the cities of New York, Chicago, and Washington during the fiscal year ended June 30, 1878.

No. 17. Statement showing the number and value of registered packages forwarded during the fiscal year ended June 30, 1878, for the Post-Office and Treasury Departments.

OPERATIONS OF THE BUREAU.

The work of this office is distributed among the divisions of Finance, of Postage Stamps, of Dead Letters, of Registration, and of Files and Records, details of the operations of which are presented as follows:

DIVISION OF FINANCE.

The appropriations for the service of this office during the fiscal year amounted to \$1,151,150, and the expenditures to \$752,232.01, leaving an unexpended balance of \$398,917.99, or 34.6 per cent. of the appropriations. This large saving was due principally to the fact that shortly subsequent to the time the appropriations were made new contracts were entered into for adhesive postage-stamps, postal cards, and other supplies at a large reduction from the old contract rates on which the appropriations were based.

The estimated amount of appropriations required to conduct the service of the office for the coming fiscal year is \$884,400, an increase of \$61,700, or $7\frac{1}{2}$ per cent., over the amount appropriated for the current year. A detailed explanation of the estimates will be found among the papers accompanying the table (No. 1) of estimates attached to this report.

The receipts and expenditures of the department during the fiscal year ended June 30, 1878, as shown by the books of this division, were as follows:

<i>Receipts.</i>	
Letter-postage, paid in money.....	\$284, 035 40
Box-rents and branch offices.....	1, 358, 448 39
Fines and penalties.....	6, 442 87
Postage-stamps, stamped envelopes, newspaper-wrappers, and postal cards.....	27, 375, 593 12
Dead letters.....	8, 937 01
Revenue from money-order business.....	209, 647 89
Miscellaneous.....	34, 412 27
Total.....	29, 277, 516 95
The total expenditures for the service of the year were.....	33, 874, 647 59

An excess over the receipts appertaining to and for the last fiscal year supplied out of appropriations from the Treasury of..... 4, 597, 130 64

The expenditures given above do not include the sum of \$290,436.90 paid on liabilities incurred during previous fiscal years.

The total receipts for the year were \$1,745,931.69 (or 5.9+ per cent.) more than those of the preceding year, and \$1,367,648.05 (or 4.4+ per cent.) less than the estimates therefor.

The difference between the amount of revenue received and the amount estimated is largely due to the fact that the latter included the sum of \$750,000, to be appropriated out of the general Treasury, for official postage-stamps for use of the Post-Office Department; but Congress having failed to make the appropriation, the amount of such stamps used by this department consequently did not become available as revenue. Excluding official postage-stamps and money-order receipts from both fiscal years, there is an increase of ordinary receipts over past fiscal year of \$1,774,500.22, or about 6.1 per cent.

Table No. 3, which accompanies this report, shows the receipts and ex-

penditures by fiscal quarters, and the increase or decrease, as compared with previous years.

An exhibit of the condition of accounts of the last fiscal year on the 30th of September, 1878, will be found in Table No. 2, herewith.

In addition to the receipts stated above, there was drawn from the Treasury, on account of special and deficiency appropriations, the sum of \$5,307,652.82, as follows:

To supply deficiencies in the revenues for the year ended June 30, 1878, act of March 3, 1877	\$2, 939, 725 00
For same, act of June 14, 1878	550, 000 00
For same, act of June 20, 1878	250, 000 00
To meet deficiencies in compensation to postmasters, for the year ended June 30, 1877, act of December 15, 1877	284, 283 36
To meet deficiency in compensation to postmasters, for the year ended June 30, 1878, act of June 14, 1878	400, 000 00
For same, act of June 20, 1878	75, 000 00
For payment of railway post-office clerks, route-agents, etc., being a deficiency for 1878, act of December 15, 1877	10, 000 00
For same, act of April 30, 1878	7, 000 00
For inland mail transportation, being a deficiency for 1878, act of December 15, 1877	500, 000 00
To meet deficiencies in the revenues for the fiscal year ended June 30, 1877, act of July 12, 1876	250, 000 00
For expenses of delegates to International Postal Congress, act of December 15, 1877	4, 000 00
To pay the New Brunswick and Canada Railroad Company, act of April 30, 1878	11, 935 73
To pay T. W. Collier, postmaster at Coshocton, Ohio, act of April 29, 1878	938 72
To pay E. B. Heal, postmaster at Harrodsburgh, Ky., act of June 19, 1878	127 00
To pay Texas and New Orleans Railroad Company, act of June 14, 1878	577 16
To pay J. C. Clendennin, for carrying mails in North Carolina, in 1867, act of June 14, 1878	101 00
To pay G. H. Giddings, of Texas, for mail service, act of June 20, 1878	2, 967 43
To pay Quartermaster's Department for mail service performed by the Memphis and Little Rock Railroad Company, prior to July 1, 1872, act of June 20, 1878	16, 897 93
To pay T. A. Kendig for carrying mails in Louisiana from November 1, 1866, to June 30, 1867, act of June 20, 1878	4, 099 44
	<hr/>
	5, 307, 652 82
The estimated expenditures for the fiscal year ending June 30, 1880, are	36, 571, 900 00
The estimated revenue for the same year is	30, 664, 023 90

Leaving a deficiency to be appropriated out of the general Treasury of. 5, 907, 876 10

Table No. 1, accompanying this report, furnishes the estimates in detail.

Congress having, for the last two consecutive years, failed to make appropriation out of the Treasury for official stamps for the use of this department, although treating them as revenue in providing means to meet the expenditures, it is not considered advisable to submit further estimates on account of this item. The estimated revenues from official postages has accordingly been confined to the amount of official postage-stamps required for the use of the other executive departments.

The following statement will show the condition of the appropriations from the general Treasury to supply deficiencies in the postal revenues, viz:

1. For the fiscal year ended June 30, 1876, the amount unexpended was \$1,852,705, which, by operation of law, was carried into the surplus fund of the Treasury on the 30th June, 1878, leaving no means available for the payment of unsettled liabilities incurred prior to July 1, 1876.

2. For the fiscal year ended June 30, 1877, the amount unexpended was \$417,498, of which \$250,000 has been drawn from the Treasury and placed to the credit of the Post-Office Department, leaving a balance of \$167,498 still remaining in the Treasury and available for the payment of indebtedness on account of said fiscal year.

3. For the fiscal year ended June 30, 1878, the amount appropriated from the Treasury to supply deficiencies in the revenues was \$3,739,725, of which \$176,238.82 remains unexpended and available for unadjusted liabilities for said fiscal year.

The unpaid indebtedness of the department for the fiscal year ended June 30, 1878, is estimated at \$350,000, for the payment of which there is available, as above stated, the sum of \$176,238.82, leaving a balance of \$173,761.18 still to be supplied out of the general Treasury.

The receipts and disbursements at treasury and post-office depositories during the last fiscal year may be briefly summarized thus:

At treasury depositories:

Balance subject to draft June 30, 1877	\$1,080,111 32
Aggregate receipts during the year ended June 30, 1878	10,623,340 29

Total	11,703,451 61
Amount of warrants paid during the year	9,923,171 52

Balance subject to draft June 30, 1878	1,780,280 09
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Transactions at these depositories, in detail, with amount of increase or decrease, as compared with previous year, are shown in Table No. 4 accompanying this report.

At post-office depositories:

Balance subject to draft June 30, 1877	\$379,265 30
Aggregate receipts during the year ended June 30, 1878	3,386,499 30

Total	3,765,764 60
Disbursements during the year	3,237,771 07

Add amount of credit balances	527,993 53
	2,753 94

Amount subject to draft June 30, 1878	530,747 47
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Table No. 5, submitted with this report, exhibits the receipts and disbursements at the different post-office depositories in detail.

During the year there were 2,671 contracts for mail service received from the Second Assistant Postmaster-General, and 8,936 orders of the Postmaster-General recognizing mail service not under contract, curtailing or extending service or modifying previous orders, being a decrease of 1,442 contracts, and an increase of 1,684 orders, as compared with the previous year. These contracts and orders were examined, verified, and entered upon the books of the division for reference when passing upon reports from the Auditor for the payment of mail-contractors and other creditors of the department. The number of such reports received and adjusted during the year was 29,300, a decrease of 854 from the previous year.

Accounts were kept with the Treasury, 9 sub-treasuries, and 37 designated depositories, involving the sum of \$10,623,340.29, against which 11,466 warrants were issued.

Accounts were also kept with 100 post-office depositories, involving the sum of \$3,386,499.30, of which \$2,660,218.81 arose from the proceeds of the depository offices themselves; \$591,621.10 from deposits (on 6,563 certificates) by other offices; and \$134,659.39 from collection drafts. Against the accumulations in the depository offices, 17,994 drafts were issued, amounting to \$1,741,389.38. In addition to the amount paid out

by draft, the sum of \$1,496,381.69 was paid to route-agents, railway post-office clerks, mail-messengers, and letter-carriers by the postmasters authorized to make such payments, the accounts for which were rendered monthly to this office.

Upon the deposit-desk of this division a record of 2,781 depositing offices was kept, showing that 11,124 certificates of deposit were received and entered, 6,985 circulars of instruction, and 915 auditor's statements of account forwarded to postmasters, and 2,475 letters from postmasters relative to balances due were received, noted upon the books, and properly referred or answered.

The action of the last Congress, relative to subletting or transfer of mail contracts (act approved May 17, 1878), whereby payments for mail service are made to the subcontractors, has more than quadrupled the work of the Division of Finance, and renders it absolutely necessary that the number of clerks of this division be increased. It is estimated that an increase of four will be sufficient to properly perform the additional labor imposed by said act.

DIVISION OF POSTAGE-STAMPS, STAMPED ENVELOPES, AND POSTAL CARDS.

The work of this division during the year is shown in the following summary: The number of ordinary postage-stamps issued to postmasters for sale to the public was 742,461,940, valued at \$19,468,618; of newspaper and periodical stamps, 1,609,578, valued at \$1,093,845.30; of stamped envelopes, plain, 88,514,600, valued at \$2,418,102.91; of envelopes bearing a request to return, 67,845,250, valued at \$2,183,025.25; of newspaper-wrappers, 27,200,500, valued at \$304,645.60; of postal cards, 200,630,000, valued at \$2,006,300; of official postage-stamps issued to the several executive departments for official use, 15,551,660, valued at \$618,094.60; and of official stamped envelopes and wrappers, 16,783,125, valued at \$474,553.10; making a total number of 1,160,596,653, and a total value of \$28,567,184.76.

The increase in the value of these several issues over those of the previous year is as follows: Of ordinary stamps, \$1,286,942, or 7.07 per cent.; of newspaper and periodical stamps, \$93,240.20, or 9.31 per cent.; of stamped envelopes, \$136,528.80, or 5.98 per cent.; of special-request envelopes, \$113,029.60, or 5.46 per cent.; of newspaper-wrappers, \$39,283.60, or 14.8 per cent.; of postal cards, \$306,145, or 18 per cent.; of official postage-stamps, \$3,987.40, or 0.65 per cent.; and of official stamped envelopes and wrappers, \$62,191.69, or 15.08 per cent.

The total increase in the value of ordinary issues was \$1,975,169.20, or 7.74 per cent.; of the official issues, the increase was \$66,179.09, or 6.4 per cent.; of the ordinary and official issues combined, \$2,041,348.29, or 7.69 per cent.

Besides the above, there were issued 4,039,000 registered-package envelopes; 9,879,100 post-office (unstamped) envelopes; and 1,479,000 dead-letter envelopes; making a total of 15,357,100. There were also issued to postmasters 1,260 stub and receipt books used in the collection of postage on newspaper and periodical matter sent through the mails.

The following statement shows the number of requisitions filled in sending out the foregoing supplies:

For ordinary postage-stamps.....	110,403
For newspaper and periodical stamps.....	7,305
For ordinary stamped envelopes and wrappers (plain).....	60,080
For special-request stamped envelopes.....	58,746
For postal cards.....	52,636

For official postage-stamps	37,940
For official stamped envelopes and wrappers	3,258
For registered-package envelopes	42,745
For post-office envelopes	42,739
For newspaper and periodical receipt-books	1,290
Making a total of	418,392

As compared with the number of requisitions filled during the previous year, this total shows a gross increase of 28,094 requisitions, or 7.2 per cent.

In filling these requisitions, the following number of packages was mailed :

Of ordinary stamps	120,230
Of newspaper and periodical stamps	7,397
Of ordinary stamped envelopes and wrappers	82,457
Of special-request envelopes	54,743
Of postal cards	61,512
Of official postage-stamps	37,940
Of official stamped envelopes and wrappers	7,252
Of registered-package envelopes	42,675
Of post-office envelopes	42,739
Of newspaper and periodical receipt-books	1,290
Making a total of	460,657

This total exhibits an increase of 33,447 packages, or 7.8 per cent., over the number of similar packages mailed during the preceding year. The number of these packages lost or stolen from the mails was 10.

As may be readily supposed, the transaction of the immense business represented by the foregoing figures involved a large amount of clerical and other labor that cannot well be reduced to any systematic statement. It will perhaps be sufficient to say that as most of the revenues of the department are realized from this division, its work must of necessity be extensive and various, and must also be promptly and accurately performed.

The amount of postage collected during the year on newspaper and periodical matter mailed from offices of publication to regular subscribers is as follows :

On 40,883,663 pounds, at 2 cents per pound	\$817,673 25
On 6,916,924 pounds, at 3 cents per pound	207,507 72
Total	1,025,180 97

This shows an increase over the amount collected during the preceding year of \$461.82.

The following table shows the number of pounds of newspaper and periodical matter mailed, and the amount of postage collected thereon, at six of the principal post-offices in the United States :

Post-office.	Matter mailed weekly and oftener, two cents per lb.	Other matter, three cents per lb.	Amount of postage.	Per cent. of total amount collected in United States.
	<i>Pounds.</i>	<i>Pounds.</i>		
Boston	2,667,917	470,590	\$67,476 04	6.5
Chicago	3,246,959	529,536	80,825 26	7.8
Cincinnati	1,657,203	290,485	41,858 61	4.5
New York	11,918,240	3,025,158	329,119 54	32.1
Philadelphia	1,317,818	974,040	55,577 56	5.4
Saint Louis	1,936,066	188,932	44,389 28	4.3
Total	22,744,203	5,478,741	619,246 29	60.2

DIVISION OF DEAD LETTERS.

The whole number of dead letters and parcels received and disposed of during the year by this division was 3,186,805, a reduction of 101,485 from the previous year's receipts. Tables No. 10 to No. 14 inclusive, accompanying this report, contain minute details of the treatment of this matter.

The reports of this office for the three preceding years contained a recommendation that some means be adopted whereby the total amount of mail matter transmitted in this country annually might be approximately ascertained; but the department has not so far found it convenient to adopt the suggestion. In the absence of any accurate statistics upon this subject, a calculation has been made in this office based upon the best data obtainable, (*viz.*, records kept by the superintendent of the free-delivery service, and tables compiled under the direction of the superintendent of the railway mail service, which have been verified by the result of an experiment made in the dead-letter office a few years since by taking the average amount of postage paid on 1,000,000 pieces of mail matter and dividing the value of the stamps sold during the year,) which shows that not less than 802,000,000 letters were mailed in the United States and received from foreign countries during the last fiscal year. It thus appears that the department failed to deliver but one letter in every 289. The success of our service in this respect is very gratifying. From official statements published in *L'Union Postale*, and presumed to be correct, it appears that Great Britain fails to deliver one in 216, France one in 230, Italy one in 126, and Germany one in 456; this last, however, would scarcely be a fair comparison, for the reason that a very much larger proportion of registered matter, the delivery of which is almost inevitable, is included in the report.

The amount of money deposited in the Treasury from letters which could not be restored to the owners was \$8,937.01. The increase over last year's deposits is explained by the fact that a large proportion of this sum was realized by the conversion of funds not receivable on deposit at the Treasury taken from letters during previous years.

All unclaimed articles of value accumulated in the dead-letter office prior to July 1, 1877, were sold at auction in January last. The amount realized and deposited in the Treasury to the credit of the Post-Office Department was \$3,209.31.

DIVISION OF REGISTRATION.

The total number of registered letters and packages forwarded during the year was 4,898,804, of which 4,744,811 were sent to points within the United States and 153,993 to foreign countries. Fees were collected on 4,159,994 at ten cents each, amounting to \$414,999.40; the balance (748,810), consisting of matter for the government, being by law exempt from the payment of registry fees.

As compared with the previous fiscal year, there was an increase of 550,677 letters and packages, and \$47,555.60 in the amount of fees collected, or a little over 12½ per cent. in the former and nearly 13 per cent. in the latter.

Table No. 15 exhibits by quarters the number of letters and packages that were registered in each State and Territory during the year.

In Table No. 17 will be found the number and value of registered packages forwarded for the Post-Office and Treasury Departments without payment of registry fees.

The number of packages of postage-stamps, stamped envelopes, and postal cards was 373,013, representing a value of \$28,567,184.76; and of United States bonds, currency, internal-revenue stamps, &c., 30,990 packages, valued at \$128,890,609.32; a total of 404,003 packages and of \$157,457,794.08 in value.

Table No. 16 gives in detail the amount of registry business transacted at the New York, Chicago, and Washington post-offices.

Of the 4,898,804 registered letters and packages forwarded during the year, only 840 were lost in transit, and the value of 304 of these was recovered through the energetic and well-directed efforts of the special-agency branch of the service. The actual losses may, therefore, be placed at 536 letters or packages, or one out of every 9,140 transmitted, a decrease of about one-half in the ratio of loss as compared with the preceding year; and this unprecedentedly small proportion of loss serves to justify public confidence in the system as a means of conveyance for valuable matter.

On the 1st October of the present year there was an important feature added to the postal service, in the extension of the registry system to third-class mail matter. Advanced reports from a few of the larger offices show that this addition has met with popular favor; and there can be no doubt that besides proving a great public convenience it will contribute materially to the postal revenues without involving a corresponding outlay.

DIVISION OF FILES, RECORDS, AND MAILS.

The total number of letters and other inclosures received, opened, and examined during the year, was 1,185,565, an increase over the previous year of 36,005.

Among the inclosures were 371 containing money, and 6,181 containing unsalable postage-stamps and stamped envelopes.

Of the letters received, 22,323 were briefed and recorded, and filed after final action had been taken upon them, and 8,722 letters written in the bureau were copied, enveloped, and mailed. The number of printed circulars mailed was 156,700.

A large portion of the work of this division is done by the messengers when not engaged in their regular duties, and they are frequently occupied long beyond the usual office hours.

ORIGIN AND USE OF POSTAGE-STAMPS, STAMPED ENVELOPES, ETC.

As there has never been published any official statement of the origin of postage-stamps, stamped envelopes, and postal cards in this country, or of the vast increase in their use, it has occurred to me that some information of that character might with propriety be presented in this report. I have, therefore, caused to be prepared, with a great deal of care, the following sketch, which it is believed will not only be of general interest, but will be a valuable addition to postal history:

POSTAGE-STAMPS.

The use of postage-stamps in the United States was first authorized by act of Congress approved March 3, 1847, and their issue, in denominations of 5 and 10 cents only, to meet the then existing rates of postage, was begun by the Post-Office Department on the 1st of July following. Previous to this date postage was collected entirely in money, its prepayment being in all cases optional.

On the 1st of July, 1851, under the operation of the act of Congress of March 3 of that year, reducing the rates of postage, a new series of

postage-stamps was adopted, consisting at first of denominations of 1 and 3 cents only, but subsequently of the additional denominations of 5, 10, 12, 24, 30, and 90 cents. The issue of these stamps continued until 1861, when, soon after the commencement of the late rebellion, to prevent the use of such of them as were outstanding in the hands of postmasters in the insurrectionary States, the series was superseded by a new one of the same denominations, but of different designs and colors. Another denomination—2 cents—was, however, added on the 1st of July, 1863, to accommodate the local rate of postage. Moreover, in consequence of a change in the rates of newspaper postage, special stamps of large size, in denominations of 5, 10, and 25 cents, were issued on the 1st of April, 1865, but soon fell into disuse on account of unpopularity.

In March, 1869, a new series of stamps replaced those up to that time in use, of the same denominations, except that a 6-cent was substituted for the 5-cent stamp; but the series not meeting with favor, it was, in its turn, superseded in May, 1870, by the stamps now in use. The same denominations continued to be employed, with the subsequent addition of a 7-cent stamp, until July 1, 1875, when a 5-cent stamp was added, and the 7, 12, and 24 cent stamps were discontinued. The series, therefore, at present consists of the following denominations: 1, 2, 3, 5, 6, 10, 15, 30, and 90 cents.

By act of Congress of March 3, 1873, in consequence of the repeal of the franking privilege, the Postmaster-General was required to provide stamps or stamped envelopes of special design for each of the several executive departments, to prepay postage on official matter passing through the mails. The issue of these stamps was commenced on the 24th of May, 1872, for use on the 1st of July following, and still continues. Their denominations are as follows:

Executive: 1, 2, 3, 6, and 10 cents.

Department of State: 1, 2, 3, 5, 7, 10, 12, 15, 24, 30, and 90 cents, and 2, 5, 10, and 20 dollars.

Treasury, War, and Navy Departments, each: 1, 2, 3, 6, 7, 10, 12, 15, 24, 30, and 90 cents.

Departments of the Interior, Justice, and Post Office, each: 1, 2, 3, 6, 10, 12, 15, 24, 30, and 90 cents.

Department of Agriculture: 1, 2, 3, 6, 10, 12, 15, 24, and 30 cents.

Under the act of Congress approved June 23, 1872, stamps of special designs were provided for the prepayment of postage on newspapers and periodicals mailed from known offices of publication or news agencies. The act took effect on the 1st of January, 1875, but the issue was begun on the 11th of December previous, and still continues. The following are the denominations: 2, 3, 4, 6, 8, 9, 10, 12, 24, 36, 48, 60, 72, 84, and 96 cents, and \$1.92, 3, 6, 9, 12, 24, 36, 48, and 60 dollars.

The following tables give the issues of postage-stamps from the date of their adoption to the present time:

Stamps issued for sale to the public.

Year ended—	Number of stamps.	Value.
June 30, 1847 to 1851.....	4, 603, 200	\$274, 710 00
1852.....	54, 136, 319	1, 535, 638 51
1853.....	56, 344, 006	1, 608, 793 91
1854.....	56, 330, 000	1, 586, 300 00
1855.....	72, 977, 300	2, 056, 197 00
1856.....	126, 045, 210	3, 611, 274 40
1857.....	154, 799, 465	4, 337, 135 90
1858.....	176, 761, 835	4, 945, 371 35
1859.....	192, 201, 990	5, 279, 405 00

Stamps issued for sale to the public—Continued.

Year ended—	Number of stamps.	Value.
June 30, 1860.....	216,370,600	\$5,920,939 00
1861.....	211,728,518	5,908,522 60
1862.....	251,307,105	7,078,186 00
1863.....	338,340,385	9,054,394 00
1864.....	334,054,610	10,177,327 00
1865.....	367,419,455	12,099,967 50
1866.....	347,731,325	10,816,661 00
1867.....	371,599,605	11,578,697 00
1868.....	383,470,500	11,751,014 00
1869.....	421,047,460	12,722,582 00
1870.....	494,118,445	13,976,768 00
1871.....	496,126,175	14,630,715 00
1872.....	541,455,070	15,840,649 00
1873.....	601,931,580	16,661,139 00
1874.....	632,733,420	17,725,262 00
1875.....	684,551,685	19,067,361 47
1876.....	700,069,437	19,718,798 75
1877.....	690,969,379	19,152,261 10
1878.....	744,071,518	20,562,463 30
	9,719,302,537	290,337,363 09

Stamps issued to executive departments for official use.

Department.	Year ending June 30—						Aggregate.
	1873.*	1874.	1875.	1876.	1877.	1878.	
Executive.....	4,650	16,250	.....	15,000	18,800	.....	54,700
State.....	60,495	101,595	100,500	34,500	122,445	.....	479,535
Treasury.....	6,317,500	9,442,500	2,400,000	3,190,000	2,592,000	3,570,000	27,512,000
War.....	440,500	703,050	659,000	646,860	1,095,390	1,281,025	4,825,825
Navy.....	160,830	315,330	243,700	217,000	207,000	196,000	1,269,860
Post Office.....	5,510,610	19,207,110	13,280,270	11,860,005	8,385,310	10,204,735	68,492,040
Interior.....	970,475	1,994,250	1,419,370	1,604,700	1,263,900	276,900	7,529,895
Justice.....	55,40	100,000	66,100	59,600	78,000	43,000	408,100
Agriculture.....	135,000	440,000	347,000	55,000	45,000	50,000	1,074,000
Total stamps.....	13,665,460	32,320,035	18,495,940	17,682,665	13,867,145	15,551,660	111,572,935
Total value.....	\$494,974.70	\$1,415,845.20	\$834,970.25	\$663,831.50	\$614,107.20	\$618,094.60	\$4,641,883.45

* Two months only.

STAMPED ENVELOPES.

The first issue of stamped envelopes was begun in June, 1853, the denominations being 3 and 6 cents, but during the following year the design of the 3-cent envelope was altered, and on the 25th of April, 1855, a 10-cent envelope was added. This series remained uninterruptedly in use until October, 1860, when it was succeeded by new designs of all three denominations, with addition of a 1 and a 4 cent denomination (the latter being a combination of the 1 and 3 cent stamp) in December, 1860, and of 12, 20, 24, and 40 cent denominations in January, 1861. In July of the same year (owing to the rebellion in the Southern States) the designs of the three principal denominations, 3, 6, and 10 cents, were again changed, remaining in use until September, 1864, when the 3 and 6 cent designs were further altered. In June, 1863, however, a 2-cent denomination was adopted, and in December, 1865, four others—9, 12, 18, and 30 cents; the 24 and 40 cent denominations being likewise changed in design. This series, consisting of denominations of 1, 2, 3, 6, 9, 10, 12, 18, 20, 24, 30, and 40 cents, continued in use until 1870.

Up to October, 1859, the stamped envelopes issued had all been plain, but at that time a self-ruling envelope was added to the series, meeting, however, with only a moderate demand. In May, 1865, envelopes containing a printed request for the return of the letter to the writer in case

of non-delivery began to be issued, becoming popular at once. There were also issued in August, 1861, for the first time, stamped note and letter sheets of the denomination of 3 cents, which, though only partially successful, remained in use until April, 1864.

On the 1st of October, 1870, the entire series of stamped envelopes was changed in design and in some of its denominations, the latter consisting of 1, 2, 3, 6, 10, 12, 15, 24, 30, and 90 cents. These designs and denominations have remained unchanged up to the present time, with the exception of the 12 and 24 cents, which have been for some time discontinued. A 5-cent and a 7-cent denomination were also added, but the 7-cent has also gone out of use. For some time after the adoption of this series envelopes were furnished, when desired, with black or faint blue lines on their face to indicate the place for the superscription, but they continued in demand for a comparatively short period. The envelopes now being issued are of seven different sizes, of three qualities of paper, of four colors, and are furnished either plain or with "printed request," according to the desire of the purchasers.

In May, 1876, an entirely new and distinctive design of stamped envelope was adopted for issue during the continuance of the Centennial Exhibition at Philadelphia. Their manufacture began on the 10th of May and ended on the 10th of November. Only two sizes were made, both of first quality white paper, and of the same denomination (3 cents). the stamp on the larger size, however, being printed in red and that on the smaller in green. The design was a shield, bearing in the upper half the device of a post-boy and the date 1776, and in the lower half a representation of "a fast-mail train" and a telegraph line, with the date 1876, as the principal figures.

In addition to the several kinds of stamped envelopes described in the foregoing sketch, there was adopted, in October, 1861, a new article of postal manufacture, known as the newspaper-wrapper, the convenience of which was at once recognized. So great, indeed, was the popular sense of their utility, that the issue during the first three months succeeding their introduction amounted to nearly 1,000,000. Since then they have continued to form a part of the series of stamped envelopes, and the demand for them annually increases. They are made of inexpensive Manila paper, are of oblong shape, and of such size as to allow of two folds over an ordinary sized newspaper. At first the denomination was two cents; in October, 1870, it was changed to one cent; at present they are issued of both denominations.

Soon after the repeal of the franking privilege, and the consequent adoption of official stamps, two of the executive departments—the War and Post Office—began the use, also, of official stamped envelopes to cover official matter passing through the mails. Such envelopes are still being used, of denominations as follows: War Department, 1, 2, 3, 6, 10, 12, 15, 24, and 30 cents; Post Office, 2, 3, and 6 cents. The War Department envelopes are of colors and qualities such as are sold to the public; the Post Office envelopes are of four sizes only, and are all of the same color and quality. None of the other executive departments have ever used official stamped envelopes.

The following tables show the number of stamped envelopes issued to postmasters for sale to the public, and official stamped envelopes issued to the War and Post-Office Departments for official use, from the first issue to the close of the fiscal year ending June 30, 1878. In the first of these tables newspaper-wrappers are included under the head of plain envelopes.

Statement of stamped envelopes issued to postmasters for sale to the public from 1853 to 1878, inclusive.

Year ended—	Plain envelopes.	Special-request envelopes.	Total.
June 30, 1853.....	5,000,000		5,000,000
1854.....	21,384,100		21,384,100
1855.....	23,451,725		23,451,725
1856.....	33,764,050		33,764,050
1857.....	33,033,400		33,033,400
1858.....	30,971,375		30,971,375
1859.....	30,920,300		30,920,300
1860.....	29,280,025		29,280,025
1861.....	26,027,300		26,027,300
1862.....	27,214,150		27,214,150
1863.....	25,548,750		25,548,750
1864.....	28,218,801		28,218,801
1865.....	25,456,175	751,000	26,207,175
1866.....	30,386,200	8,706,525	39,092,725
1867.....	46,421,400	16,665,250	63,086,650
1868.....	47,894,900	25,469,750	73,364,650
1869.....	49,851,000	31,824,100	81,675,100
1870.....	49,051,500	36,338,000	85,389,500
1871.....	56,563,625	48,111,650	104,675,275
1872.....	67,100,750	46,825,000	113,925,750
1873.....	74,971,350	52,201,250	127,172,600
1874.....	84,472,250	51,940,250	136,412,500
1875.....	95,135,400	54,611,000	149,746,400
1876.....	100,065,750	64,354,500	164,420,250
1877.....	106,276,950	64,374,500	170,651,450
1878.....	115,715,100	67,845,250	183,560,350
Aggregate.....	1,269,362,325	570,249,300	1,839,611,625

* These amounts include 212,300 stamped note and letter sheets (165,100 letter and 46,200 note).

Statement of official stamped envelopes issued to the War and Post-Office Departments from 1872 to 1878, inclusive.

Year ended—	To War Department.	To Post-Office Department.	Total.
June 30, 1873*.....	587,100	4,354,750	4,941,850
1874.....	2,397,600	10,503,300	12,900,900
1875.....	2,126,700	10,718,300	12,845,000
1876.....	2,914,905	12,775,250	15,690,155
1877.....	1,908,745	12,841,700	14,750,445
1878.....	1,792,625	14,990,500	16,783,125
Aggregate.....	11,727,075	66,183,800	77,910,875

* Two months only.

POSTAL CARDS.

Postal cards were first employed and issued in May, 1873, the denomination being one cent, and gained immediate popularity. A new design of card was adopted in 1875, being the one now in use.

The number of cards issued during each year since their adoption is as follows:

Year ending June 30, 1873 (two months only).....	31,094,000
1874.....	91,079,000
1875.....	107,616,000
1876.....	150,815,000
1877.....	170,015,500
1878.....	200,630,000
Aggregate.....	751,249,500

MODE OF ISSUING STAMPS, ETC.

Postage-stamps, stamped envelopes, and postal cards are manufactured for the government by contract, and are issued under the supervision of an agent, stationed at the place of manufacture, upon the daily orders of the Post-Office Department. These orders are made up of items covering the wants of different postmasters, as partially made known by their requisitions from time to time received, and the stamps, envelopes, or cards called for are sent directly from the agency to the offices named in the order. As the issue of these articles is at the foundation of nearly all the revenues of the Post-Office Department, great vigilance is exercised to prevent any postmaster from being supplied therewith to an extent greater than the actual needs of his office, or to an amount exceeding his bonded liability.

For the year 1852, the year immediately preceding the introduction of stamped envelopes, the number of postmasters' requisitions for stamps was 9,200. During the year ending June 30, 1878, the number of requisitions for stamps, stamped envelopes, and postal cards amounted in round numbers to 418,000.

I have the honor to be, very respectfully, your obedient servant,
A. D. HAZEN,
Third Assistant Postmaster-General.

Hon. D. M. KEY,
Postmaster-General.

No. 1.—*Estimates of appropriations required for the service of the fiscal year ending June 30, 1880, by the Post-Office Department.*

OFFICE OF THE POSTMASTER-GENERAL.

Mail depredations and special agents, including amount necessary for fees to United States attorneys, marshals, &c.....	\$150,000 00
Advertising	60,000 00
Preparation and publication of post-route maps, including constant revision of former editions, and furnishing maps, diagrams, and other information by the topographer and assistants.....	35,000 00
Miscellaneous items in the office of the Postmaster-General.....	1,500 00

OFFICE OF THE FIRST ASSISTANT POSTMASTER-GENERAL.

Compensation to postmasters	8,000,000 00
Clerks in post-offices.....	3,600,000 00
Letter-carriers	2,000,000 00
Wrapping-paper	20,000 00
Twine	50,000 00
Marking and rating stamps.....	12,000 00
Letter-balances and scales.....	4,000 00
Rent, fuel, and light	450,000 00
Office-furniture	30,000 00
Stationery	55,000 00
Miscellaneous and incidental items.....	125,000 00

OFFICE OF THE SECOND ASSISTANT POSTMASTER-GENERAL.

Inland transportation, railroad routes.....	10,250,000 00
Inland transportation, steamboat routes.....	900,000 00
Inland transportation, star routes	5,900,000 00
Railway post-office clerks	1,350,000 00
Route-agents	1,125,000 00
Mail-route messengers	175,000 00
Local agents	150,000 00
Mail-messengers	725,000 00
Mail locks and keys	15,000 00
Mail-bags and mail-bag catchers	200,000 00

OFFICE OF THE THIRD ASSISTANT POSTMASTER-GENERAL.

Postage stamps	\$92,000 00
Expenses of agency	8,100 00
Stamped envelopes and newspaper-wrappers	490,000 00
Expenses of agency	16,000 00
Postal cards	200,000 00
Expenses of agency	7,300 00
Registered-package envelopes, locks and seals, and post-office and dead-letter envelopes	65,000 00
Ship, steamboat, and way letters.....	4,500 00
Engraving, printing, and binding drafts and warrants.....	1,500 00

OFFICE OF SUPERINTENDENT OF FOREIGN MAILS.

Transportation of foreign mails	260,000 00
Balance due foreign countries, including the United States portion of the expenses of the international office organized under the provisions of article 15 of the General Postal Union Treaty, concluded at Berne, October 9, 1874	45,000 00
	<hr/> 36,571,900 00

Estimated amount which will be provided by the department from its own revenue, accruing from postages and other sources, viz:	
Ordinary revenues	\$30,150,000 00
Money-order receipts	210,000 00
Official postages.....	304,023 90
	<hr/> 30,664,023 90

Leaving a deficiency in the revenue of the Post-Office Department to be provided for out of the General Treasury	5,907,876 10
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A. D. HAZEN,

Third Assistant Postmaster-General.

OFFICE OF THIRD ASSISTANT POSTMASTER-GENERAL,

October 16, 1878.

No. 1a.

POST-OFFICE DEPARTMENT,

OFFICE OF THE CHIEF CLERK TO THE POSTMASTER-GENERAL,

Washington, D. C., September 23, 1878.

SIR: In compliance with the request contained in your letter of the 2d instant, I have the honor to submit the following estimate of the amount required to be appropriated during the fiscal year beginning July 1, 1879, for the purposes specified, viz:

For mail depredations and special agents.....	\$150,000
For preparation and publication of post-route maps	35,000
For advertising	60,000
For miscellaneous items in office of Postmaster-General	1,500

I inclose herewith explanatory statements from the Superintendent of the Division of Mail Depredations and the Topographer relative to the estimates for their respective offices.

The estimates for the last two items, viz, for advertising and for miscellaneous items, are based upon the appropriations for the present year, which are regarded as sufficient.

Very respectfully,

W. A. KNAPP,
*Chief Clerk.*Hon. A. D. HAZEN,
Third Assistant Postmaster-General.

No. 1b.

POST-OFFICE DEPARTMENT, OFFICE CHIEF OF DIVISION
SPECIAL AGENTS AND MAIL DEPREDACTIONS,
Washington, September 24, 1878.

SIR: I have the honor to say that, for the purpose of conducting with due efficiency the business of the Division of Special Agents and Mail Depredations, the sum of one hundred and seventy-five thousand dollars (\$175,000) will be required for the fiscal year ending June 30, 1879.

The opening of the mails for the conveyance of large amounts of treasure, while it increases the revenue of the department, also invites attacks upon them, and liberal provision should be made for their security. In the sparsely-settled Territories of the West they are liable to be robbed at every turn of the road, and it will only be by the exercise of the greatest vigilance and the offer of large rewards that these raids upon the mails can be prevented.

They have become so frequent within a few months past that the department has been compelled to go far beyond its usual limit in the amount of rewards offered for the apprehension of depredators upon the mails in the districts referred to, and in the furtherance of this object other and extraordinary expenses may necessarily be incurred, so that a less sum than that named in the above estimate (\$175,000) will hardly meet the wants of the service.

The greatest economy is exercised under the restrictions imposed in the appropriation bill of the last session of Congress for the service of this Department in the expenditure of the appropriation for this division. The monthly reports of those special agents who receive a per diem are carefully scrutinized, and they are required to account for each day's service, and are only allowed per diem for those days on which they are actually engaged in traveling in the service of the department or detained under expenses in the discharge of their duties away from home.

Very respectfully, your obedient servant,

C. COCHRAN, JR.,
Chief of Division.

Gen. WILLIAM A. KNAPP,
Chief Clerk Post-Office Department.

No. 1c.

POST-OFFICE DEPARTMENT,
TOPOGRAPHER'S OFFICE,
Washington, D. C., September 21, 1878.

SIR: I respectfully submit that in the estimates of appropriations required for the fiscal year ending June 30, 1880, there be inserted this item, with the attached clause authorizing the sale of maps (same as in act of Congress June 17, 1878, "making appropriations for the service of the Post-Office Department," &c.):

For preparation and publication of post-route maps, with continuous revision of previous editions, furnishing maps, and keeping up the working diagrams of the several bureaus of the department, fifty thousand dollars (\$50,000); and the Postmaster-General may authorize the publication and sale of said maps to individuals at the cost thereof, the proceeds of said sales to be applied as a further appropriation for said purpose.

The sum above estimated will cover the salaries of draughtsmen employed on current and on new work, the engraving, lithographing, and

photolithographing; the printing, coloring, mounting, and backing maps; the purchase of copper plates, lithographic stones, map-paper, and other materials used; the purchase of technical books, atlases, and maps for reference; the payment of clerical force, and other incidentals.

By "current work" is to be understood that which forms by far the greater part of the duties of the employes (draughtsmen and clerks) of this office, namely, the keeping up the working maps and diagrams in daily use for reference by the officers and clerks of the department, both those resident here and those in the field on duty. For the correct and expeditious transaction of their business this work is of the most vital importance, exhibiting, as it does, the actual state of the service as to post-offices and their supply by individual routes.

The proceeds of sales of maps during the fiscal year ending June 30, 1878, were \$855.80.

This amount, deposited in the United States Treasury, was drawn upon and used "as a further appropriation" in the "preparation and publication of post-route maps," as allowed by the law, act June 17, 1878.

Respectfully submitted,

W. L. NICHOLSON,
Topographer Post-Office Department.

W. A. KNAPP, Esq.,
Chief Clerk to the Postmaster-General.

Estimate of appropriation required for the service of the Topographer's Office, Post-Office Department, under the head "For preparation and publication of post-route maps," &c., for the fiscal year ending June 30, 1880.

For salaries	\$27,160
For engraving new maps and altering old plates	7,000
For lithographing and photolithographing (including changes of old work) ..	6,000
For printing maps from engravings and lithographs	2,000
For map-paper, copper-plates, and lithographic stones	1,500
For backing, mounting, and binding maps	840
For drawing-materials, purchase of maps, atlases, books, &c.	500
For contingencies and expansion of work	5,000
	50,000

No. 1d.

POST OFFICE DEPARTMENT, OFFICE OF THE FIRST ASSISTANT POSTMASTER-GENERAL, Washington, D. C., October 1, 1878.

SIR: Agreeably to your request, I submit herewith estimates of the appropriations necessary for the fiscal year ending June 30, 1880, under the following heads, viz:

For compensation to postmasters	\$8,000,000
For clerks in post-offices	3,600,000
For letter-carriers	2,000,000
For wrapping-paper	20,000
For twine	50,000
For marking and rating stamps	12,000
For letter balances and scales	4,000
For rent, fuel, and light	450,000
For office furniture	30,000
For stationery	55,000
For miscellaneous items	125,000
	14,346,000

The estimate (\$8,000,000) for the item of compensation to postmasters is believed not to be too high, although the appropriation for the current year is only \$7,250,000. For the fiscal year ended June 30, 1878, \$7,725,000 was appropriated, and it is considered that a still further

amount, in the nature of a deficiency, will be necessary for this item. The alteration in the law, at the last session of Congress, regulating the compensation of postmasters, may possibly result in a reduction in this particular expenditure during the present fiscal year; but I think it better to request the appropriation of an amount large enough to cover all contingencies than to be compelled to apply annually for sums to meet deficiencies, as has been the case for the past three years.

The appropriation for the present fiscal year for clerks in post-offices is \$3,465,000. It may, therefore, seem that the estimate (\$3,600,000) for 1879-'80 is excessive; but, in my judgment, the wants of the service absolutely require a more liberal appropriation for this item than the department has recently had. The files of this office now contain at least nine hundred meritorious applications of postmasters for an increase in their allowances for clerical assistance. I know that the inability of the department, from lack of means, to grant many of these applications does result in detriment to the public interests, and I earnestly hope the amount estimated for will be given.

The importance of the letter-carrier service, and the desire on the part of the public for its extension, makes, in my opinion, the estimate of \$2,000,000 for this item necessary. This sum would enable the department to increase the frequency of deliveries and collections, as well as permit the extension of this service in the large cities where it is now in operation, and likewise enable the department to afford other cities, entitled to the benefits of the free-delivery system under the present law, the same facilities in the distribution of mail matter. The amount appropriated for the current fiscal year (\$1,875,000) will suffice only for the existing condition of this service, and will not admit of adapting it to the increasing wants of the country.

The estimates for the items of wrapping-paper, twine, marking and rating stamps, and letter balances and scales, are, with the exception of that for twine, the same as the present appropriations for the same articles. In my judgment the increase (\$5,000) in the amount asked for twine is necessary in order to procure a good and substantial article.

The appropriation for the current fiscal year for rent, fuel, and light is \$380,000, which is \$20,000 less than the amount appropriated for the last year. This sum is inadequate to the demands from all parts of the country for increased facilities in these particulars to meet the wants of a constantly increasing service. I do not consider the estimate of \$450,000 too large for this purpose, and believe the public have a right to expect that the department will in this, as in regard to all the other items, do all in its power to serve them in all reasonable and proper ways.

The estimates for office furniture, for stationery, and for miscellaneous items are each somewhat in excess of the present appropriations, but not larger than have been submitted for the past three years. Considerable difficulty has been experienced, during the period named, in keeping within the amounts appropriated; and the denial of many reasonable and proper requests of postmasters for additional allowances for one or more of these items has, I am certain, somewhat interfered with the efficiency of the postal service. I therefore think the estimates for these items not in the least too high.

The total amount of the estimates (\$14,346,000) is \$274,000 more than the total of the estimates for 1878-'79, and \$1,145,000 in excess of the appropriation for the present fiscal year.

Very respectfully, &c.,

JAMES H. MARR,
Acting First Assistant Postmaster-General.

HON. A. D. HAZEN,
Third Assistant Postmaster-General.

No. 1 c.—Statement showing the increase or decrease per centum, for the items named below, of the appropriations for the fiscal years ending June 30, 1878, and June 30, 1879, as compared with the estimates for the fiscal year ending June 30, 1880; also the increase or decrease per centum, for the same items, of the expenditures for the fiscal year ending June 30, 1878, as compared with the estimates for the fiscal year ending June 30, 1880.

Items.	Appropriation for the fiscal year ending June 30, 1878.	Estimate for the fiscal year ending June 30, 1880.	Per centum of increase or decrease of estimates for 1878-80 over appropriation for 1877-78.		Appropriation for the fiscal year ending June 30, 1879.	Estimate for the fiscal year ending June 30, 1880.	Per centum of increase or decrease of estimates for 1878-80 over appropriation for 1877-78.		Expended during the fiscal year ending June 30, 1878.	Per centum of increase or decrease of estimates for 1878-80 over expenditures for 1877-78.	
			Increase.	Decrease.			Increase.	Decrease.		Increase.	Decrease.
For compensation to postmasters.....	\$7,725,000	\$8,000,000	3.55	.....	\$7,250,000	\$8,000,000	10.34	.....	\$7,866,921 37	.....	.....
For clerks in post-offices.....	3,340,000	3,600,000	7.78	.....	3,465,000	3,600,000	3.92	.....	3,325,498 02	8.35	.....
For letter-carriers.....	1,825,000	2,000,000	9.58	.....	1,875,000	2,000,000	6.36	.....	1,894,044 07	9.64	.....
For wrapping-paper.....	22,500	20,000	.....	11.11	20,000	25,000	.....	.....	16,509 00	21.14	.....
For twine.....	50,000	50,000	.....	.....	45,000	50,000	.....	.....	42,163 47	15.38	.....
For marking and rating stamps.....	9,000	12,000	33.33	.....	12,000	12,000	.....	.....	8,999 85	33.67	.....
For letter balances and scales.....	5,000	4,000	.....	30.00	3,500	4,000	14.28	.....	3,142 00	37.30	.....
For rent, fuel, and light.....	400,000	450,000	12.5	.....	380,000	450,000	18.42	.....	376,694 85	18.39	.....
For office furniture.....	20,000	30,000	50.00	.....	30,000	30,000	.....	.....	10,717 92	179.91	.....
For stationery.....	55,000	55,000	.....	.....	50,000	55,000	10.00	.....	37,574 56	46.37	.....
For miscellaneous and incidental items.....	80,000	125,000	56.25	.....	80,000	125,000	56.25	.....	73,611 63	69.95	.....
Total.....	13,531,000	14,346,000	6.02	.....	13,900,500	14,346,000	8.67	.....	13,666,080 74	4.09	.....

* Act of Congress March 3, 1877, \$7,250,000, appropriation; act of Congress June 14, 1878, \$400,000, deficiency; act of Congress June 30, 1878, \$75,000, deficiency.

No. 1f.

POST-OFFICE DEPARTMENT, OFFICE OF THE
SECOND ASSISTANT POSTMASTER-GENERAL,
Washington, D. C., November 1, 1878.

SIR: I have the honor herewith to submit an estimate of the amount necessary to be appropriated to cover the cost of the various items of expense incident to this office for the fiscal year ending June 30, 1880. The sum required is \$20,790,000, made up as follows, viz:

For transportation by railroad routes \$10,250,000, which is \$1,150,000 more than the \$9,100,000 appropriated for 1879. The reason for the large difference is that the sum of \$9,100,000 is entirely inadequate, and that the sum of \$400,000 additional is required to cover the cost of the service for the current fiscal year; therefore the difference between the amount required for the current year and the estimate for 1880 is but \$750,000. This sum is \$237,441 more than the \$512,559 increase for 1878 over 1877. In further explanation of this estimate it is observed that in considering the probable cost of the railroad service for 1880, the estimate for the item of transportation on newly constructed railroads should be greater than it has been for several years past, for the reason that the large immigration into the undeveloped farming and mineral regions west of the Mississippi River, extending from Texas to Minnesota, is creating a necessity for railroad communication throughout this vast territory. And the time is at hand when capital can be employed in the construction of railroads with as much advantage as at any time in the history of the country.

The amount appropriated for service on steamboat routes for 1879 is \$700,000. The estimate for 1880, is \$900,000, an increase of \$200,000. This increase arises from the fact that a separate appropriation was made for the steamboat service for the first time for the current fiscal year. And the division of cost between the "star" and the "steamboat service" was made without consultation with this office, and the steamboat service in operation provided for, whereas there were, at the time the division was made, other routes upon which proposals for service had been invited by advertisement, which were not considered, hence the necessity for an increased appropriation for 1880.

The cost of service on "star" routes on the 30th June, 1878, was \$5,714,943. The estimate for 1880 is \$5,900,000, an increase of \$185,057.

The appropriation for railway post-office clerks for 1879 was \$1,325,000. The estimate for 1880 is \$1,350,000, an increase of \$25,000.

The increased appropriation for railway post-office clerks for 1880 is required because of the increase in the amount of mail-matter conveyed by railroad; the extension of the registry system to third-class mail-matter (requiring the clerks to handle the same and carefully record it), and the close connections maintained very generally throughout the country, each of which, considering that the work must be done with accuracy and dispatch, involves much additional labor and care on the part of the railway post-office clerks, while the usefulness of the postal system is greatly increased and the public directly benefited. The work on the great lines, much of which is done at night, taxes the railway post-office clerks for the greater portion of the year to the utmost limit of human endurance, and the force on many lines, in order to properly do the work, must be increased. It is not expected that the increased appropriation asked for will cover the cost of the additional work, as it is proposed to employ route agents to perform the local work on railway post-office lines. This, however, will only be assigning railway post-office clerks

and route agents to their respective duties, though the distinction between the two is a useless technicality which should be discontinued.

The appropriation for route agents for 1879 is \$1,030,000. The estimate for 1880 is \$1,125,000, an increase of \$95,000.

This increase is required in consequence of the assignment of route agents to perform local work on railway post-office lines, as before explained. In addition to this, wherever it is practicable to do so, the service is being placed on the express or fast trains. These trains make all connections, and therefore render a much more satisfactory and expeditious service. By placing the mails on the express trains less time is occupied in their transmission, consequently less time is afforded for distribution, and, in order to do the work on such routes passing through thickly-settled regions, it is necessary to employ additional agents. There is also much pressure for double daily route-agent service on the more important lines, where the trains are run with sufficient frequency to admit of its performance. And, too, the service on newly-constructed roads (2,500 miles in 1878) requires the employment of additional agents.

The appropriation for mail-route messengers for 1879 is \$171,000. The estimate for 1880 is \$175,000, an increase of \$4,000.

The appropriation for local agents for 1879 is \$115,000. The estimate for 1880 is \$150,000, an increase of \$35,000.

The attention of the proprietors of railroads is at this time especially directed to the expediting of trains and the maintaining of the closest possible connections. This requires that the mails be promptly transferred at junctions instead of passing through post-offices, as is customary where there is sufficient time to do so. Local agents are necessary at all junctions where there are mails of any importance to separate and dispatch in different directions.

The appropriation for mail messengers for 1879 is \$675,000. The estimate for 1880 is \$725,000, an increase of \$50,000.

The appropriation for mail-locks and keys for 1879 is \$15,000, and the estimate for 1880 is fixed at the same amount.

The appropriation for mail bags and mail-bag catchers for 1879 is \$185,000. The estimate for 1880 is \$200,000, an increase of \$15,000.

Very respectfully, &c.,

THOS. J. BRADY,

Second Assistant Postmaster-General.

Hon. A. D. HAZEN,

Third Assistant Postmaster-General.

No. 1 g.—Cost of inland transportation, and the items incident thereto, for the years 1877 and 1878, with the appropriation for 1879, and the estimates of the amounts necessary to be appropriated for 1880, showing the percentage of increase and decrease, with the cost, appropriation, and estimates for mail locks and keys, mail-bags, and mail-bag catchers.

Object.	Cost for 1877.	Cost for 1878.	Per centum increase or decrease of 1878 as to 1877.		Appropriation for 1879.	Per centum increase or decrease of appropriation of 1879 as to cost of 1878.		Estimate for 1880.	Per centum increase or decrease as to appropriation for 1879.	
			Increase.	Decrease.		Increase.	Decrease.		Increase.	Decrease.
Inland transportation, railroad routes	\$9,033,936 00	\$9,566,595 00	5½	.....	\$9,100,000 00	.....	4½	\$10,950,000 00	124	.....
Inland transportation, steamboat routes	466,949 00	732,423 00	15½	.....	700,000 00	.....	6 97	800,000 00	28 57	.....
Inland transportation, canal routes	5,683,970 00	5,714,943 01	.....	.....	5,399,673 00	.....	5½	5,900,000 00	8 46	.....
Railway post-office clerks	1,924,690 00	1,281,380 00	2 10	.....	1,323,000 00	.....	5 10	1,350,000 00	1 84	.....
Post-agents	994,540 00	1,045,580 00	5½	.....	1,030,000 00	.....	1 52	1,125,000 00	9 22	.....
Mail-route-messengers	102,864 00	154,353 00	.....	4½	171,000 00	.....	10 61	175,000 00	2 34	.....
Local agents	105,530 00	117,850 00	11½	.....	115,000 00	.....	2½	130,000 00	20 43	.....
Mail-messengers	638,497 00	649,387 00	.....	1 53	675,000 00	.....	3 94	725,000 00	7½	.....
Mail locks and keys	14,475 00	5,400 00	.....	56 29	15,000 00	.....	154½	15,000 00	.....	.....
Mail-bags and mail-bag catchers	165,641 29	140,275 00	.....	15 33	185,000 00	.....	32	200,000 00	8½	.....
Total .....	.....	.....	.....	.....	18,706,673 00	.....	.....	20,790,000 00	11½	.....

NOTE.—The above estimates are based upon the contract prices and annual salaries, without reference to fines and deductions. This will explain the apparent discrepancy between this table and the Auditor's statement.

THOS. J. BRADY,
Second Assistant Postmaster-General.

No. 1 h.

Explanation of estimates of appropriations for the office of the Third Assistant Postmaster-General.

I.—ADHESIVE POSTAGE-STAMPS.

For manufacture of adhesive postage-stamps, of official stamps, and newspaper and periodical stamps	\$92,000 00
The number of ordinary postage-stamps issued during the fiscal year ending June 30, 1878, was	742,461,940
Add 10 per cent. for increase	74,246,194
Gives estimated issue for fiscal year ending June 30, 1879	816,708,134
Add 10 per cent. for increase, as before	81,670,813
Gives estimated issue for fiscal year ending June 30, 1880	898,378,947
Cost of manufacturing that number at present contract price, 9.98 cents per thousand	\$89,658 22
Add estimated cost of manufacturing official and newspaper and periodical stamps	2,500 00
Gives estimated total cost of manufacturing adhesive postage-stamps during the fiscal year ending June 30, 1880	92,158 22

The rate of increase assumed in the above calculation is somewhat greater than the actual rate of increase in the issue of ordinary stamps during the year ending June 30, 1878, over those of the preceding year, which was about 8 per cent.; but it must be remembered that the issues for both these years have been exceptionally small. It is considered prudent, also, to make some allowance for an increased demand for these articles which a revival of business throughout the country is likely to create. The cost per thousand for manufacturing will be the same as during the last year, the contract not expiring until the first of May, 1881.

The actual cost of manufacturing official stamps and newspaper and periodical stamps during the past year was \$1,951.88, which, on account of the steady growth of the newspaper and periodical business, may be expected to be increased to \$2,500. The estimate in even numbers may be put at \$92,000.

II.—POSTAGE-STAMP AGENCY.

For pay of agent and assistants to distribute stamps and expenses of the agency. \$8,100

The amount of this estimate is the same as the present appropriation, and is barely sufficient to cover the salaries of the agent and his assistants, and the necessary expenses of the agency.

III.—STAMPED ENVELOPES AND WRAPPERS.

For manufacture of stamped envelopes and newspaper wrappers	\$490,000 00
The cost of manufacturing stamped envelopes and newspaper wrappers, both ordinary and official, during the fiscal year ending June 30, 1878, calculated at present contract rates, would be	\$390,957 59
Add 12 per cent. for estimated increase	46,914 91
Gives estimated cost for year ending June 30, 1879	437,872 50
Add 12 per cent. for increase, as before	52,544 70
Gives estimated cost for year ending June 30, 1880	490,417 20

In this calculation, as in the case of postage-stamps, the estimated rate of increase is somewhat larger than that of the last over the previous fiscal year; but it is about the average rate for several years preceding.

It must be borne in mind, too, that the department has lately made a very advantageous contract for the manufacture of stamped envelopes, under which the selling price to the public will be greatly reduced, and

the demand for them very largely augmented. The estimate is only \$20,000 more than the present appropriation, the amount of which was reduced below the regular estimate in anticipation of the low rates of the new contract, at the suggestion of this office in a letter dated March 28, 1878, to the chairman of the subcommittee on appropriations of the House of Representatives. The estimate is put in round numbers at \$490,000, a smaller amount than which it would be hardly safe to appropriate.

IV.—STAMPED ENVELOPE AGENCY.

For pay of agent and assistants to distribute stamped envelopes and newspaper wrappers, and expenses of the agency..... \$16,000 00

This estimate agrees with the present appropriation, and is not more than the actual necessities of the agency demand.

V.—POSTAL CARDS.

For manufacture of postal cards..... \$200,000 00

The number of postal cards issued during the fiscal year ending June 30, 1878, was	200,630,000
Add 20 per cent. for estimated increase.....	40,126,000

Gives estimated issue for year ending June 30, 1879.....	240,756,000
Add 20 per cent. for increase, as before.....	48,151,200

Gives estimated issue for year ending June 30, 1880.....	288,907,200
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Cost of manufacturing that number at present contract price of 69.56 cents per thousand	\$200,963 85
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The actual rate of increase in the issue of postal cards for the last fiscal year over that of the preceding year was 18 per cent.; the average for three years prior thereto was 24 per cent. It will thus be at once seen that to estimate for any less rate of increase than that above (20 per cent.) would be unsafe. The present contract for manufacturing postal cards is the same as was in force at the date of the last appropriation. It will not expire until the 1st of July, 1881.

VI.—POSTAL-CARD AGENCY.

For pay of agent and assistants to distribute postal cards, for expert to supervise manufacture of paper for same, and for expenses of the agency... \$7,300 00

This estimate is just \$1,200 more than the present appropriation. Besides the salaries of the agent and his assistants, it is intended to cover the salary of an inspector to be stationed at the mill where the paper for the postal cards is made. In the contract for the manufacture of postal cards, the quality of the paper of which the cards are made is defined, and the right is reserved to the government to see, by stationing an agent at the mill or mills where the paper is made, that such quality is furnished. Such a provision also occurs in the contract for the manufacture of stamped envelopes. The agent for whose pay estimate is now made can superintend the manufacture of paper under both these contracts, and his employment is regarded, on sound business principles, as necessary.

VII.—REGISTERED-PACKAGE ENVELOPES, LOCKS AND SEALS, AND DEAD-LETTER ENVELOPES.

For registered-package envelopes, locks and seals, and for post-office and dead-letter envelopes..... \$65,000 00

This estimate agrees with the current appropriation, and is not too high. The articles are provided under one contract, which is let for one year only. The use of the registered-package envelopes, owing to the order of the department providing for the registration of third-class matter, which went into effect on the 1st of October of the present year, will undoubtedly be greatly increased.

IX.—SHIP, STEAMBOAT, AND WAY LETTERS.

For ship, steamboat, and way letters..... \$4,500

By law (sections 3913, 3976, 3977, and 3978, Revised Statutes) this appropriation is necessary for the payment to masters or owners of vessels not regularly engaged in transporting the mails, for letters brought and delivered to post-offices on arrival in port, for transmission to destination. The parties receiving the letters are required to pay, in addition to the regular postage, the amounts paid to said masters or owners, which amounts are consequently refunded to the department. The current appropriation is \$6,000.

X.—ENGRAVING, PRINTING, AND BINDING DRAFTS AND WARRANTS.

For engraving, printing, and binding drafts and warrants..... \$1,500

This amount is for the blank drafts and warrants used in paying contractors and others, and is the same as the current appropriation.

Comparison of estimates with present appropriations.

Items.	Estimate for fiscal year ending June 30, 1880.	Appropriation for fiscal year ending June 30, 1879.	Increase of estimate—amount.
For manufacture of adhesive stamps, of official, and of newspaper and periodical stamps.....	\$92,000	\$40,000	\$12,000
For pay of agent and assistants to distribute stamps, and expenses of the agency.....	8,100	8,100	.....
For manufacture of stamped envelopes and newspaper-wrappers.....	490,000	470,000	20,000
For pay of agent and assistants to distribute stamped envelopes and newspaper-wrappers.....	16,000	16,000	.....
For manufacture of postal cards.....	200,000	170,000	30,000
For pay of agent and assistants to distribute postal, and for pay of paper inspector.....	7,300	6,100	1,200
For registered-package envelopes, locks, and seals, and for post-office and dead-letter envelopes.....	65,000	65,000	.....
For ship, steamboat, and way letters.....	4,500	6,000	\$1,500
For engraving, printing, and binding drafts and warrants.....	1,500	1,500	.....
Totals and increase of estimates.....	\$84,400	\$22,700	61,700

* Decrease.

A. D. HAZEN,
Third Assistant Postmaster-General.

No. 1 i.

POST-OFFICE DEPARTMENT,
OFFICE OF FOREIGN MAILS,
Washington, D. C., September 16, 1878.

SIR: I transmit herewith, agreeably to the request made in your letter of the 2d instant, an estimate of the amounts required to be appropriated for the foreign mail service during the fiscal year ending June 30, 1880, as follows, viz:

For foreign mail transportation..... \$260,000
For balances due foreign countries, including the United States portion of the expense of the International office organized under the provisions of article 15 of the General Postal Union Treaty, concluded at Berne, October 9, 1874..... 45,000

I am, very respectfully, your obedient servant,
JOSEPH H. BLACKFAN,
Superintendent.

Hon. A. D. HAZEN,
Third Assistant Postmaster-General.

No. 1 k.

POST-OFFICE DEPARTMENT,
OFFICE OF SUPERINTENDENT OF MONEY-ORDER SYSTEM,
Washington, D. C., September 30, 1878.

SIR: In compliance with the request made in your letter of to-day, I have the honor to inform you that the revenue to be derived from the money-order business for the fiscal year ending June 30, 1880, will, in my opinion, amount to two hundred and ten thousand dollars (\$210,000).

I am, respectfully, your obedient servant,

C. F. MACDONALD,
Superintendent.

Hon. A. D. HAZEN,
Third Assistant Postmaster-General.

No. 2.—Statement showing appropriations for the fiscal year ending June 30, 1878, and the expenditures made, by items, up to September 30, 1878, out of said appropriations.

Title of appropriations.	Amount of appropriation including special acts.	Expended.	Balance unexpended.	Excess of expenditures.
Compensation of postmasters	\$7,725,000 00	\$7,966,921 37	.....	\$241,921 37
Compensation of clerks for post-offices	3,340,000 00	3,325,498 02	\$14,501 98	.....
Compensation of letter-carriers and incidental expenses	1,825,000 00	1,824,044 07	955 93	.....
Wrapping-paper	22,500 00	16,509 00	5,991 00	.....
Twine	50,000 00	42,163 47	7,836 53	.....
Postmarking and canceling stamps	9,000 00	8,999 85	15	.....
Letter-balances	5,000 00	3,142 00	1,858 00	.....
Rent, light, and fuel for post-offices	400,000 00	376,898 85	23,101 15	.....
Stationery	55,000 00	37,574 56	17,425 44	.....
Furniture for post-offices	20,000 00	10,717 92	9,282 08	.....
Miscellaneous—office of First Assistant Postmaster-General	80,000 00	73,611 63	6,388 37	.....
Inland mail transportation—railroads	9,279,410 87	9,324,139 09	.....	44,728 22
Inland mail transportation—star	6,745,160 87	6,400,671 69	344,489 18	.....
Compensation of railway post-office clerks	1,237,000 00	1,236,524 39	475 61	.....
Compensation of route-agents	1,000,000 00	996,254 82	3,745 18	.....
Compensation of mail-route messengers	155,000 00	154,592 97	407 03	.....
Compensation of local agents	110,000 00	109,291 64	708 36	.....
Compensation of mail-messengers	670,000 00	644,620 36	25,379 64	.....
Mail locks and keys	16,000 00	890 00	15,110 00	.....
Mail bags and catchers	200,000 00	140,291 74	59,738 26	.....
Post-route maps, including proceeds of sales	30,855 80	30,855 80	.....	.....
Mail depredations and special agents, including fees to attorneys, &c.	135,000 00	134,999 85	15	.....
Postage-stamps	150,000 00	76,037 35	73,962 65	.....
Distribution of postage-stamps	6,900 00	6,697 48	202 52	.....
Stamped envelopes and newspaper-wrappers	600,000 00	474,131 64	125,868 36	.....
Distribution of stamped-envelopes and newspaper wrappers	14,150 00	13,813 47	336 53	.....
Postal cards	300,000 00	133,579 56	166,420 44	.....
Distribution of postal cards	6,100 00	5,690 34	409 66	.....
Registered-package envelopes, locks and seals	40,000 00	23,224 25	16,775 75	.....
Official envelopes for postmasters, and dead-letter envelopes	25,000 00	16,140 28	8,859 72	.....
Ship, steamboat, and way letters	7,500 00	2,388 14	5,111 86	.....
Engraving, printing, and binding drafts and warrants	1,500 00	529 50	970 50	.....
Advertising	60,000 00	15,254 54	44,145 46	.....
Miscellaneous—Office of Postmaster-General	1,500 00	1,074 46	425 54	.....
Foreign mail transportation	240,000 00	216,809 55	21,190 45	.....
Balance due foreign countries	50,000 00	17,493 94	32,506 06	.....
Delegates to International Postal Congress—Paris, France	4,000 00	4,000 00	.....	.....
Special commission on railway mail transportation	6,000 00	6,000 00	.....	.....
Totals	34,622,577 54	33,874,647 59	1,034,579 54	286,649 59

A. D. HAZEN,
Third Assistant Postmaster-General.

OFFICE OF THIRD ASSISTANT POSTMASTER-GENERAL,
DIVISION OF FINANCE, October 28, 1878.

No. 3.—Statement exhibiting the receipts and expenditures, under appropriate heads, by quarters,

RECEIPTS.

	Quarter ended September 30, 1877.	Quarter ended December 31, 1877.	Quarter ended March 31, 1878.	Quarter ended June 30, 1878.
Letter-postage paid in money.....	\$50, 215 93	\$94, 472 14	\$64, 906 65	\$75, 140 62
Book, newspaper, and pamphlet postage.....				
Box-rents and branch offices.....	334, 363 53	338, 411 11	343, 985 06	341, 689 69
Fines and penalties.....	690 30	797 50	865 45	4, 029 62
Postage-stamps, stamped envelopes, newspaper-wrappers, and postal cards.....	6, 453, 133 92	6, 959, 056 03	7, 137, 795 43	6, 825, 607 74
Dead letters.....	1, 979 00	4, 818 20	1, 190 98	948 53
Revenue from money-order business.....				209, 647 29
Revenue from money-order business, international, June 30, 1875.....				
Miscellaneous.....	8, 849 47	6, 529 72	7, 870 25	11, 163 22
	6, 849, 231 15	7, 404, 064 30	7, 535, 913 82	7, 401, 227 62

Comparison, including revenue from money-order business and official stamps:

Increase of receipts over year ended June 30, 1877 \$1,745,931.69, or 5.9+ per cent.

Increase of receipts over year ended June 30, 1876, \$633,319.45, or 2.1+ per cent.

EXPENDITURES.

Compensation of postmasters.....	\$1, 869, 853 92	\$1, 979, 556 25	\$2, 064, 808 34	\$2, 052, 702 66
Additional compensation to postmasters.....				
Compensation of clerks for post-offices.....	823, 100 29	827, 907 18	822, 477 94	846, 712 61
Compensation of letter-carriers, and incidental expenses.....	432, 596 17	453, 228 60	457, 242 83	460, 916 47
Wrapping-paper.....	3, 335 00	2, 960 00	4, 645 00	5, 589 00
Twine.....	8, 740 00	11, 607 20	10, 788 27	11, 022 00
Postmarking and canceling stamps.....	2, 479 30	1, 977 27	2, 379 53	2, 163 75
Letter-balances.....				3, 142 00
Rent, light, and fuel for post-offices.....	89, 493 85	95, 933 19	99, 208 23	92, 973 65
Stationery.....	8, 621 34	9, 291 71	9, 492 01	10, 160 42
Furniture for post-offices.....	3, 290 92	4, 327 58	1, 073 78	1, 965 64
Miscellaneous—Office of First Assistant Postmaster-General.....	18, 538 81	21, 766 05	17, 254 94	18, 037 83
Inland-mail transportation—railroad.....	2, 172, 819 20	2, 291, 317 48	2, 313, 976 39	2, 545, 996 11
Inland-mail transportation—star.....	1, 580, 465 77	1, 579, 461 10	1, 694, 699 27	1, 636, 045 55
Compensation of railway post-office clerks.....	307, 520 21	307, 700 37	308, 333 15	319, 970 66
Compensation of route-agents.....	247, 475 15	246, 659 21	247, 192 01	254, 992 45
Compensation of mail-route messengers.....	40, 441 50	34, 562 17	37, 424 86	38, 104 44
Compensation of local agents.....	27, 591 43	26, 524 29	27, 161 27	24, 014 06
Compensation of mail-messengers.....	161, 329 59	155, 148 53	164, 971 02	163, 671 20
Mail locks and keys.....			690 00	
Mail bags and catchers.....	14, 577 33	59, 137 98	40, 933 04	25, 593 45
Post-route maps.....	7, 263 77	7, 206 73	8, 408 75	6, 771 55
Mail depredations and special agents.....	34, 104 96	33, 223 25	30, 697 39	29, 630 32
Postage-stamps.....	17, 624 85	18, 827 12	20, 822 40	18, 702 92
Distribution of postage-stamps.....	2, 187 78	1, 485 25	1, 475 00	1, 549 45
Stamped envelopes and newspaper-wrappers.....	110, 331 29	120, 638 87	126, 334 95	116, 826 53
Distribution of stamped envelopes and newspaper-wrappers.....	3, 275 00	3, 407 97	3, 288 10	3, 849 40
Postal cards.....	26, 145 61	36, 856 09	35, 427 96	35, 150 47
Distribution of postal cards.....	1, 028 36	1, 427 90	1, 369 05	1, 819 03
Registered-package envelopes, locks, and seals.....	3, 220 00	6, 392 50	5, 721 25	7, 900 50
Official envelopes for postmasters.....	2, 503 29	3, 468 22	4, 717 43	3, 675 84
Dead-letter envelopes.....	724 80	240 00	372 00	438 00
Ship, steamboat, and way letters.....	642 61	645 61	511 19	588 53
Fees to United States marshals, attorneys, clerks of courts, and counsel.....	864 49	693 79	460 42	1, 865 23
Engraving, printing, and binding drafts and warrants.....	10 00	331 50		122 00
Advertising.....	3, 161 36	3, 132 35	3, 696 09	5, 294 74
Miscellaneous—Office of Postmaster-General.....	451 58	443 43	174 40	5 00
Foreign-mail transportation.....	44, 644 42	47, 304 74	63, 423 09	52, 311 39
Balance due foreign countries.....	134 66	426 64	11, 541 15	16, 517 34
Official postal guides.....				
Subsidy—San Francisco, Japan and China line.....				
Special commission on railroad transportation.....	5, 000 00	1, 000 00		
Miscellaneous—Office Third Assistant Postmaster-General.....				
Delegate to International Postal Convention, Paris, France.....		4, 000 00		
	8, 074, 267 77	8, 403, 689 52	8, 578, 604 79	8, 817, 225 51

RECEIPTS AND EXPENDITURES FOR 1878.

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for the fiscal year ended June 30, 1878, compared with the fiscal years ended June 30, 1877-76.

RECEIPTS.

Total year ended June 30, 1878.	Total expenditures on account of previous fiscal years.	Total year ended June 30, 1877.	Compared with year ended June 30, 1877.		Total year ended June 30, 1876.	Compared with year ended June 30, 1876.	
			Increase.	Decrease.		Increase.	Decrease.
\$284,035 40		\$241,378 26	\$42,677 14		\$234,792 37	\$39,243 03	
1,358,448 36		1,324,968 08	36,480 31		1,305,927 05	52,521 34	\$211 06
6,442 87		7,541 62		\$1,098 75	3,358 01	3,084 86	
27,375,593 12		25,757,515 76	1,618,077 36		26,879,512 10	496,081 02	
8,937 01		4,945 50	3,991 51		9,889 20		952 19
209,647 89		109,148 01	100,499 88		190,770 84	18,877 05	
		63,261 84		63,261 84			
34,412 27		25,846 19	8,566 08		29,736 87	4,675 40	
29,277,516 95		27,531,585 26	1,810,298 28	64,360 59	28,644,197 50	634,482 70	1,103 25
27,531,585 26			64,360 59		29,277,516 95	1,163 25	
1,745,931 69			1,745,931 69		633,319 45	633,319 45	

Comparison, excluding revenue from money-order business and official stamps:

Increase of receipts over year ended June 30, 1877, \$1,233,259.90, or 4.2+ per cent.

Increase of receipts over year ended June 30, 1876, \$119,647.67, or 4.0+ per cent.

EXPENDITURES.

\$7,966,921 37	\$10,930 35	\$7,284,283 36		\$7,397,397 91
3,325,498 02	372 96	3,233,151 60		1,175 43
1,894,044 07	98 32	1,893,595 58		3,480,730 15
16,509 00		17,207 50		1,980,785 02
42,163 47	1,143 00	38,771 17		18,207 02
8,999 85		9,984 98		38,718 28
3,142 00		2,773 50		8,857 90
376,698 85		373,694 54		3,907 39
37,574 56		43,427 46		390,422 77
10,717 92		7,067 09		43,312 83
				19,499 27
73,611 63	221 36	64,266 64		76,022 66
9,324,139 09	185,266 51	8,701,033 11		14,745,843 95
6,400,671 69	25,033 86	5,639,647 34		1,223,750 19
1,236,524 39		1,923,569 41		940,151 97
996,254 82		959,660 46		147,152 27
154,592 97		147,598 61		101,813 27
109,291 64		105,718 70		632,648 03
644,620 36	4,412 45	659,190 65		15,709 70
	5,000 00	13,347 50		206,517 49
140,261 74	1,212 70	166,030 76		23,662 92
30,855 80		20,666 58		118,676 94
131,115 92	8,061 46	138,692 27		120,788 08
76,037 35		110,189 59		5,050 85
6,697 48		6,422 76		358,600 14
474,131 64	3,321 10	428,224 63		10,021 16
				182,122 79
13,813 47	182 75	12,081 14		4,027 84
133,579 56	23,496 20	226,463 94		32,167 59
5,690 34	1,275 00	4,264 10		15,423 31
23,224 25		35,878 04		2,279 40
14,365 43		16,112 77		4,071 83
1,774 50		513 30		
2,398 14		3,905 24		4,903 28
3,883 93	520 35	2,659 02		1,751 00
529 50		1,245 32		86,855 14
15,854 54	8,075 50	22,831 15		1,630 51
1,074 46		180 70		229,123 26
207,683 70	11,135 85	213,534 76		33,253 20
28,619 79		22,739 89		18,952 83
		19,912 68		537,500 00
6,000 00		250,000 00		
	87 18			
4,000 00				
33,874,647 59	290,436 90	32,322,504 24		33,263,497 58

No. 4.—Receipts and disbursements at Treasury depositories during the fiscal year ended June 30, 1878.

Depositories.	Deposits.	Grants from Treasury.	By transfer.	Aggregate accumulation.
Treasurer U. S., Washington, D. C.	\$145,332 94	\$2,884 94	\$1,176,291 78	\$1,324,499 66
Asst. treasurer U. S., Baltimore, Md.	148,914 87		50,173 00	199,087 87
Asst. treasurer U. S., Boston, Mass.	570,765 12			570,765 12
Asst. treasurer U. S., Charleston, S. C.				
Asst. treasurer U. S., Chicago, Ill.	330,773 10		675,000 00	995,773 10
Asst. treasurer U. S., Cincinnati, Ohio.	204,239 50		200,000 00	404,239 50
Asst. treasurer U. S., New Orleans, La.	94,670 70		300,000 00	398,670 70
Asst. treasurer U. S., New York, N. Y.	1,609,148 82	6,125,965 08		7,735,113 90
Asst. treasurer U. S., Philadelphia, Pa.	541,635 39		75,000 00	616,635 39
Asst. treasurer U. S., San Francisco, Cal.	353,138 32			353,138 32
Asst. treasurer U. S., Saint Louis, Mo.	264,496 67		825,000 00	1,089,496 67
Designated depository, Tucson, Ariz.				
First National Bank, Denver, Colo.	5 00			5 00
First National Bank, Galveston, Tex.	2,717 64			2,717 64
First National Bank, Leavenworth, Kans.	1,218 00			1,218 00
First National Bank, Madison, Wis.	340 00			34 00
First National Bank, Memphis, Tenn.	615 75			615 75
First National Bank, Milwaukee, Wis.	118 40			118 40
First National Bank, Nashville, Tenn.	638 50			638 50
First National Bank, Portland, Oreg.	13,363 61			13,363 61
First National Bank, Providence, R. I.	25 00			25 00
First National Bank, Santa Fe, N. Mex.	1,113 46			1,113 46
First National Bank, Springfield, Ill.	2,500 00			2,500 00
First National Bank, Saint Paul, Minn.				
First National Bank, Trenton, N. J.	1,552 98			1,552 98
First National Bank, Yankton, Dak.	370 29			370 29
Second National Bank, Detroit, Mich.	29 25			29 25
Second National Bank, Saint Paul, Minn.	254 46			254 46
Merchants' Nat'l Bank, Cleveland, Ohio.	3,079 45			3,079 45
Merchants' Nat'l Bank, Little Rock, Ark.	307 57			307 57
Merchants' Nat'l Bank, Portland, Me.	98 90			98 90
Merchants' Nat'l Bank, Savannah, Ga.	146 15			146 15
Atlanta National Bank, Atlanta, Ga.				
Charter Oak Nat'l Bank, Hartford, Conn.	1,263 62			1,263 62
City National Bank, Grand Rapids, Mich.				
East Tenn. Nat'l Bank, Knoxville, Tenn.	92 33			92 33
Exchange National Bank, Norfolk, Va.				
Farmers and Mechanics' National Bank, Buffalo, N. Y.	375 00			375 00
Indianapolis National Bank, Indianapolis, Ind.	363 75			363 75
Kentucky National Bank, Louisville, Ky.	207 86			207 86
Lynchburg Nat'l Bank, Lynchburg, Va.	173 00			173 00
Naessan National Bank, Brooklyn, N. Y.				
National Valley Bank, Staunton, Va.	84 40			84 40
Omaha National Bank, Omaha, Nebr.	528 56			528 56
People's National Bank, Charleston, S. C.	57 68			57 68
Planters' National Bank, Richmond, Va.	5,472 41			5,472 41
Planters' National Bank, Danville, Va.				
San Antonio National Bank, San Antonio, Tex.	49 82			49 82
Total	4,494,470 27	6,128,870 02	3,301,464 78	13,924,805 07

No. 4.—Receipts and disbursements at Treasury depositories, &c.—Continued.

Depositories.	Aggregate receipts.	Increase of receipts over 1877.	Decrease of receipts from 1877.	Warrants drawn.	Increase over 1877.
Treasurer U. S., Washington, D. C.	\$148,207 88		\$336,904 62	\$1,324,898 94	
Asst. treasurer U. S., Baltimore, Md.	148,914 87		18,144 39	196,413 30	
Asst. treasurer U. S., Boston, Mass.	570,765 12	\$20,291 82		407,106 10	
Asst. treasurer U. S., Charleston, S. C.			3,904 41		
Asst. treasurer U. S., Chicago, Ill.	320,773 10	91,343 55		999,714 79	
Asst. treasurer U. S., Cincinnati, Ohio	204,239 50		18,724 26	385,208 13	\$71,182 99
Asst. treasurer U. S., New Orleans, La.	98,670 70	11,561 00		406,079 34	
Asst. treasurer U. S., New York, N. Y.	7,935,133 90		455,865 66	4,134,840 36	
Asst. treasurer U. S., Philadelphia, Pa.	541,635 39		28,527 43	641,475 14	159,799 09
Asst. treasurer U. S., San Francisco, Cal.	353,138 32		4,053 71	351,521 09	
Asst. treasurer U. S., Saint Louis, Mo.	264,496 67	2,445 66		1,077,198 73	2,395 06
Designated depository, Tucson, Ariz.			2,636 91		
First National Bank, Denver, Colo.	5 00	5 00			
First National Bank, Galveston, Tex.	2,717 64	1,528 55			
First National Bank, Leavenworth, Kans.	1,218 00		1,181 99		
First National Bank, Madison, Wis.	340 00	340 00			
First National Bank, Memphis, Tenn.	615 75	615 75			
First National Bank, Milwaukee, Wis.	118 40		139 64		
First National Bank, Nashville, Tenn.	838 50	389 21			
First National Bank, Portland, Oreg.	13,363 61	11,283 59			
First National Bank, Providence, R. I.	25 00		15 00		
First National Bank, Santa Fe, N. Mex.	1,113 46	1,113 46			
First National Bank, Springfield, Ill.	2,500 00	2,357 43			
First National Bank, Saint Paul, Minn.			792 73		
First National Bank, Trenton, N. J.	1,552 98	1,552 98			
First National Bank, Yankton, Dak.	370 29	370 29			
Second National Bank, Detroit, Mich.	29 25	29 25			
Second National Bank, Saint Paul, Minn.	254 46	254 46			
Merchants' Nat'l Bank, Cleveland, Ohio.	3,079 45	3,079 45			
Merchants' Nat'l Bank, Little Rock, Ark.	307 57		615 02		
Merchants' Nat'l Bank, Portland, Me.	98 90	23 10			
Merchants' Nat'l Bank, Savannah, Ga.	148 15	49 77			
Atlanta National Bank, Atlanta, Ga.			1,794 03		
Charter Oak Nat'l Bank, Hartford, Conn.	1,263 62	1,148 62			
City National Bank, Grand Rapids, Mich.			276 24		
East Tenn. Nat'l Bank, Knoxville, Tenn.	92 33		162 67		
Exchange National Bank, Norfolk, Va.			2,114 68		
Farmers and Mechanics' National Bank, Buffalo, N. Y.					
Indianapolis National Bank, Indianapolis, Ind.	375 00	325 75			
Kentucky National Bank, Louisville, Ky.	363 75		565 52		
Lynchburg Nat'l Bank, Lynchburg, Va.	207 86	207 86			
Nassau National Bank, Brooklyn, N. Y.	173 00	173 00		500 00	
National Valley Bank, Staunton, Va.	84 40	84 40			
Omaha National Bank, Omaha, Nebr.	528 56	528 56			
People's National Bank, Charleston, S. C.	57 68		4,330 14		
Planters' National Bank, Richmond, Va.	5,472 41	5,063 82			
Planters' National Bank, Danville, Va.			201 84		
San Antonio National Bank, San Antonio, Tex.	49 82		115 48		
Total	10,623,340 29	156,166 33	870,922 43	9,924,455 92	233,377 14

No. 4.—Receipts and disbursements at Treasury depositories, &c.—Continued.

Depositories.	Decrease from 1877.	Transfer account.		Warrants paid.	Balance subject to draft June 30, 1878.
		From—	To—		
Treasurer U. S., Washington, D. C.	\$577,916 60		\$1,176,291 78	\$1,327,612 36	\$30,747 96
Asst. treasurer U. S., Baltimore, Md.	21,447 63		50,173 00	196,187 31	58,567 73
Asst. treasurer U. S., Boston, Mass.	87,715 92	\$150,000 00		407,717 03	137,140 30
Asst. treasurer U. S., Charleston, S. C.	96,284 48				
Asst. treasurer U. S., Chicago, Ill.	125,140 04		675,000 00	999,604 05	96,380 31
Asst. treasurer U. S., Cincinnati, Ohio.			200,000 00	385,940 02	53,000 25
Asst. treasurer U. S., New Orleans, La.	42,013 36		300,000 00	406,390 49	90,855 33
Asst. treasurer U. S., New York, N. Y.	443,011 44	3,088,624 03		4,137,316 97	1,809,406 06
Asst. treasurer U. S., Philadelphia, Pa.		25,000 00	75,000 00	637,224 67	77,663 47
Asst. treasurer U. S., San Francisco, Cal.	39,315 03			347,037 88	42,283 44
Asst. treasurer U. S., Saint Louis, Mo.			825,000 00	1,078,844 74	42,234 06
Designated depository, Tucson, Ariz.					5 00
First National Bank, Denver, Colo.		2,704 00			33 64
First National Bank, Galveston, Tex.		3,450 19			
First Nat'l Bank, Leavenworth, Kans.		900 00			140 00
First National Bank, Madison, Wis.					615 75
First National Bank, Memphis, Tenn.					93 40
First National Bank, Milwaukee, Wis.		26 00			
First National Bank, Nashville, Tenn.		960 50			
First National Bank, Portland, Oreg.		11,507 09			3,072 83
First National Bank, Providence, R. I.		25 00			
First National Bank, Santa Fé, N. Mex.		1,113 46			
First National Bank, Springfield, Ill.		2,643 57			
First National Bank, Saint Paul, Minn.					
First National Bank, Trenton, N. J.		1,552 98			370 29
First National Bank, Yankton, Dak.					
Second National Bank, Detroit, Mich.		29 25			
Second Nat'l Bank, Saint Paul, Minn.		254 46			
Merchants' Nat'l Bank, Cleveland, Ohio.		2,882 80			196 65
Merchants' Nat'l B'k, Little Rock, Ark.		565 01			119 33
Merchants' Nat'l Bank, Portland, Me.		119 90			
Merchants' Nat'l Bank, Savannah, Ga.		246 53			
Atlanta National Bank, Atlanta, Ga.		1,208 45			
Charter Oak Nat'l B'k, Hartford, Conn.		864 89			509 73
City Nat'l Bank, Grand Rapids, Mich.					
East Tenn. Nat'l B'k, Knoxville, Tenn.		97 33			
Exchange National Bank, Norfolk, Va.					
Farmers and Mechanics' Nat'l Bank, Buffalo, N. Y.		275 00			100 00
Indianapolis National Bank, Indianap- olis, Ind.		358 75			5 00
Kentucky Nat'l Bank, Louisville, Ky.		207 86			
Lynchburg Nat'l Bank, Lynchburg, Va.		173 00			
Nassau National Bank, Brooklyn, N. Y.					
National Valley Bank, Staunton, Va.					84 40
Omaha National Bank, Omaha, Nebr.		29 40			499 16
People's Nat'l Bank, Charleston, S. C.		950 10			
Planters' Nat'l Bank, Richmond, Va.		5,322 41			150 00
Planters' National Bank, Danville, Va.					
San Antonio National Bank, San Anto- nio, Tex.		49 82			
Total	1,432,144 50	3,301,464 78	3,301,464 78	9,923,171 52	1,780,280 09

Comparative statement between fiscal years of 1877 and 1878 at Treasury depositories.

Deposits for fiscal year of 1877	\$5,209,230 37	
Deposits for fiscal year of 1878	4,494,470 27	
Decrease in deposits for 1878	714,760 10	
Grants from the Treasury for 1878	\$8,124,870 02	
Grants from the Treasury for 1877	6,108,498 87	
Increase in grants for 1878	20,381 15	
Aggregate receipts for 1877	11,317,719 24	
Aggregate receipts for 1878	10,623,340 29	
Decrease in aggregate receipts for 1878	694,378 95	
Decrease of receipts for 1878	870,926 43	
Deduct increase of receipts for 1878	156,166 33	
Decrease for 1878, as shown above	714,760 10	
Warrants drawn for 1877	\$11,193,223 28	
Warrants drawn for 1878	9,924,455 92	
Decrease of warrants for 1878	1,432,144 50	
Deduct increase of warrants for 1878	233,377 14	
	1,198,767 36	1,198,767 36
Balance subject to draft June 30, 1878	1,780,280 09	
Balance subject to draft June 30, 1877	1,080,111 32	
Increase for 1878	700,168 77	
Total number of warrants issued during fiscal year of 1877	12,593	
Total number of warrants issued during fiscal year of 1878	11,466	
Decrease for 1878	1,127	

A. D. HAZEN,
Third Assistant Postmaster-General.

No. 5.—Receipts and disbursements at depository post-offices on account of the fiscal year ended June 30, 1878.

Office.	State.	Proceeds.	Deposits.	Collections.	Aggregate accumulations.	Amount subject to draft June 30, 1877.	Total.	Disbursements.	Amount subject to June 30, 1878.	Credit balance June 30, 1878.
Adrian.....	Michigan	\$5,565 47	\$34,966 14	\$63 62	\$5,628 09	\$2,090 31	\$7,648 40	\$5,731 82	\$1,916 58	.....
Albany.....	New York	86,851 43	96 42	853 02	122,670 59	7,685 24	130,555 52	104,591 12	21,464 40	.....
Albion.....	Iowa	1,188 60	7,553 98	667 64	1,954 66	2,389 90	2,639 90	2,379 49	2,379 49	.....
Albion.....	Georgia	21,151 25	621 26	27,321 07	29,325 49	166 99	29,492 48	32,115 62	32,115 62	.....
Albion.....	New York	24,432 42	4,600 35	2,429 20	27,321 07	6,011 96	33,333 95	32,738 45	9,595 50	.....
Albion.....	Maine	32,225 25	1,696 77	407 81	34,332 83	2,682 17	37,015 00	27,681 87	9,273 13	.....
Albion.....	Texas	13,540 69	2,821 29	4,900 10	21,342 04	3,661 29	24,903 37	23,670 83	1,272 54	.....
Albion.....	Maine	11,900 25	4,710 43	4,474 12	16,463 98	1,321 03	17,784 99	15,916 65	1,868 34	.....
Albion.....	New York	5,549 13	7,100 59	1,472 56	6,229 58	1,472 56	7,702 15	4,539 02	3,208 70	.....
Albion.....	Michigan	6,521 43	429 76	1,472 56	8,423 75	1,075 31	9,499 06	19,418 90	8,637 63	.....
Albion.....	New York	17,946 73	5,792 62	78 91	23,818 26	4,657 87	28,476 13	19,418 90	8,637 63	.....
Albion.....	Vermont	11,859 81	281 02	8 40	12,140 23	2,015 80	14,144 83	10,401 90	3,633 63	.....
Albion.....	Illinois	2,001 34	376 44	591 63	2,969 41	3,16 04	3,305 45	2,641 42	664 03	.....
Albion.....	South Carolina	38,550 06	3,460 37	656 87	42,677 30	1,079 53	43,756 83	41,740 35	2,016 58	.....
Albion.....	Ohio	144,554 66	11,804 65	327 03	156,366 34	14,308 23	170,674 57	150,623 33	20,271 24	.....
Albion.....	do	56,157 69	8,095 51	22 56	64,275 66	5,954 28	70,230 94	58,937 09	11,323 17	.....
Albion.....	New Hampshire	17,961 73	13,112 17	343 56	36,073 90	6,039 66	42,113 56	30,150 40	11,963 16	.....
Albion.....	Iowa	3,692 02	545 65	948 76	4,633 81	1,416 39	6,050 20	4,564 58	2,135 04	.....
Albion.....	Colorado	39,315 08	16,319 97	1,052 37	46,383 81	4,437 39	47,420 20	46,253 10	2,167 10	.....
Albion.....	Iowa	32,404 58	9,535 96	1,527 82	42,999 81	2,356 40	47,420 20	46,253 10	2,167 10	.....
Albion.....	Michigan	142,798 93	6,646 95	4,540 03	153,985 91	2,269 04	156,254 95	150,872 40	5,382 55	.....
Albion.....	Iowa	22,748 02	3,587 47	78 51	26,335 49	1,269 49	27,604 98	25,005 09	2,599 89	.....
Albion.....	Michigan	9,609 98	1,304 30	29 90	11,092 79	2,434 70	13,527 49	8,765 49	4,762 00	.....
Albion.....	New York	15,725 72	4,255 21	460 38	20,471 35	2,734 50	23,205 85	21,669 25	1,536 60	.....
Albion.....	Indiana	2,844 47	1,896 15	209 84	4,940 46	894 71	5,835 17	19,040 53	1,894 79	.....
Albion.....	Iowa	2,776 72	2,130 75	598 64	16,397 47	3,141 59	19,539 06	15,836 40	3,702 66	.....
Albion.....	Indiana	32,039 58	2,307 75	312 88	34,946 21	2,507 67	37,453 88	32,307 94	5,145 94	.....
Albion.....	Michigan	42,006 38	8,940 16	312 88	51,928 42	3,240 38	54,499 20	47,660 94	6,838 26	.....
Albion.....	Pennsylvania	68,952 03	17,861 10	101 37	86,813 59	6,694 91	93,508 50	81,419 53	12,139 95	.....
Albion.....	Connecticut	846 96	2,647 43	954 21	4,444 60	745 75	5,194 38	4,689 49	524 89	.....
Albion.....	Michigan	12,225 46	65 38	296 50	12,545 06	1,656 04	14,201 10	14,331 90	130 80	.....
Albion.....	Texas	1,965 37	774 19	078 31	2,743 67	334 37	3,078 04	2,677 59	400 45	.....
Albion.....	Alabama	56,493 19	1,501 81	2,014 75	60,009 65	2,507 37	62,517 02	56,701 17	5,815 85	.....
Albion.....	Indiana	8,430 97	745 90	40 45	9,216 32	3,001 71	12,218 03	8,863 50	3,354 53	.....
Albion.....	Florida	7,763 16	1,065 42	1,699 78	10,528 36	1,856 98	12,385 34	10,933 97	1,451 37	.....
Albion.....	New York	6,015 65	1,978 45	129 53	7,123 63	1,856 98	8,979 61	5,406 93	3,572 68	.....
Albion.....	Michigan	11,952 35	2,541 33	1,420 30	14,914 98	2,940 58	17,855 56	10,223 03	7,632 53	.....
Albion.....	Kalamazoo	5,045 78	2,041 33	7,067 11	14,153 22	1,949 29	16,102 51	10,223 03	5,879 48	.....
Albion.....	New Hampshire	13,876 90	1,103 13	.....	15,377 76	2,480 09	17,857 85	16,102 51	1,755 34	.....
Albion.....	Iowa	9,651 05	2,661 20	852 51	13,113 76	2,480 09	15,593 85	13,113 76	2,480 09	.....
Albion.....	Tennessee	10,862 81	549 64	277 93	11,710 97	2,794 15	14,505 12	11,709 91	2,795 21	.....
Albion.....	Michigan	.....	.....	.....	.....	.....	.....	.....	.....	.....

Leavenworth	12,300 03	33,543 09	1,000 64	46,944 35	51,719 43	46,153 92	5,565 51
Lexington	13,940 70	3,086 87	1,730 20	16,106 16	18,782 21	17,051 45	1,730 76
Lima	5,324 70	3,486 78	73 05	8,886 53	14,787 48	11,471 77	3,315 71
Louisville	190,386 94	6,483 71	677 82	196,870 81	134,169 64	124,961 81	5,148 83
Madison	14,789 73	3,623 50		18,413 24	31,169 63	18,507 34	2,462 24
Malone	3,246 78	247 82		3,494 36	4,624 54	2,740 54	1,883 90
Marquette	3,246 78	435 61	30 05	3,681 63	3,975 15	2,896 99	1,084 16
Marshalltown	6,246 53	39 54	49 10	6,286 17	3,839 96	4,756 46	2,533 40
Meadville	26,483 60	39 54	707 36	26,523 03	34,442 18	16,238 13	9,304 05
Memphis	7,571 87	4,203 37	1,365 05	8,875 42	13,629 22	49,713 81	11,771 47
Menasha	40,497 54	11,442 04	543 97	52,040 51	136,966 16	184,433 93	11,771 47
Milwaukee	116,840 81	5,103 97	914 94	122,054 76	1,466 71	94,778 47	4,206 84
Mobile	27,673 63	11,572 90	727 17	39,353 57	21,063 47	21,063 47	3,586 62
Montgomery	7,055 90	2,705 04	117 03	9,760 94	10,647 79	7,051 17	2,709 39
Montpelier	5,308 46	2,566 00		7,874 46	6,401 16	4,851 77	3,549 69
Mount Pleasant	3,404 36	4,417 36	2,291 30	10,116 02	49,315 43	45,489 55	3,626 47
Nashville	37,719 43	27,340 99	1,259 31	65,060 72	114,294 81	111,294 81	3,997 92
Newark	10,854 63	4,401 09	857 14	15,252 86	33,684 94	14,594 60	9,664 34
New Bedford	63,274 00	43,401 09	700 46	108,324 55	114,426 64	99,036 94	13,440 70
New Haven	6,246 53	1,087 72	52 78	7,334 25	4,904 56	8,831 91	3,529 65
Norwich	3,246 53	3,451 40	4 10	6,697 93	11,191 46	8,980 81	2,216 65
Opedunburgh	3,246 53	1,914 43	1,478 70	4,723 13	9,051 42	4,975 40	4,076 05
Ottawa	94,400 06	24,193 30	7,501 58	126,094 84	55,943 14	54,721 00	1,372 84
Peoria	30,396 05	2,632 68	2,524 04	35,550 73	37,517 28	38,968 32	1,368 04
Pittsburgh	166,774 60	10,325 68	2,524 04	179,624 28	196,532 12	181,361 91	13,270 37
Plattsburgh	4,296 90	94 85	94 85	4,391 75	9,847 48	65,198 73	11,731 36
Portland	57,195 74	13,440 48	312 63	69,938 87	76,834 08	8,164 97	3,033 81
Portland	5,016 74	3,667 44	969 06	7,683 20	9,435 79	8,478 52	9,435 79
Portsmouth	32,575 84	34 75	34 75	32,610 59	175,001 32	16,434 77	14,777 84
Providence	102,446 00	4,097 43	34 75	106,543 43	17,060 33	13,440 77	3,619 66
Raleigh	54,513 98	5,940 39	566 55	60,454 37	67,476 16	62,494 67	4,961 51
Richmond	51,719 75	9,638 15	2 40	61,357 90	67,445 70	96,030 64	1,754 59
Rochester	3,719 32	3,243 00	641 45	6,962 77	10,653 90	6,896 97	3,759 12
Rutland	4,893 53	2,923 93		7,817 46	2,923 93	2,923 93	1,011 21
Saint Albans	4,893 53	2,923 93	707 61	7,817 46	2,923 93	2,923 93	1,011 21
Saint Albansbury	4,893 53	2,923 93	707 61	7,817 46	2,923 93	2,923 93	1,011 21
Saint Paul	4,893 53	2,923 93	707 61	7,817 46	2,923 93	2,923 93	1,011 21
Sandwich	4,893 53	2,923 93	707 61	7,817 46	2,923 93	2,923 93	1,011 21
Savannah	4,893 53	2,923 93	707 61	7,817 46	2,923 93	2,923 93	1,011 21
Scranton	4,893 53	2,923 93	707 61	7,817 46	2,923 93	2,923 93	1,011 21
Springfield	4,893 53	2,923 93	707 61	7,817 46	2,923 93	2,923 93	1,011 21
Springfield	4,893 53	2,923 93	707 61	7,817 46	2,923 93	2,923 93	1,011 21
Sturtevant	4,893 53	2,923 93	707 61	7,817 46	2,923 93	2,923 93	1,011 21
Syracuse	4,893 53	2,923 93	707 61	7,817 46	2,923 93	2,923 93	1,011 21
Taunton	4,893 53	2,923 93	707 61	7,817 46	2,923 93	2,923 93	1,011 21
Terre Haute	4,893 53	2,923 93	707 61	7,817 46	2,923 93	2,923 93	1,011 21
Toledo	4,893 53	2,923 93	707 61	7,817 46	2,923 93	2,923 93	1,011 21
Towanda	4,893 53	2,923 93	707 61	7,817 46	2,923 93	2,923 93	1,011 21
Urbana	4,893 53	2,923 93	707 61	7,817 46	2,923 93	2,923 93	1,011 21
Utica	4,893 53	2,923 93	707 61	7,817 46	2,923 93	2,923 93	1,011 21
Watertown	4,893 53	2,923 93	707 61	7,817 46	2,923 93	2,923 93	1,011 21

* Ceased to be a draft office January 1, 1878.

No. 5.—Receipts and disbursements at depository post-offices, &c.—Continued.

Offices.	States.	Proceeds.	Deposits.	Collections.	Aggregate accumulations.	Amount subject to draft June 30, 1877.	Total.	Disbursements.	Amount subject to draft June 30, 1878.	Credit balances June 30, 1878.
Wellsborough.....	Pennsylvania.....	\$1,360 39	\$913 27	.....	\$2,373 66	\$340 95	\$2,614 61	\$656 70	\$1,957 91	.....
Wheeling.....	West Virginia.....	17,927 85	1,593 09	.....	19,521 04	3,698 54	23,149 58	18,691 09	4,458 49	.....
Williamsport.....	Pennsylvania.....	14,450 86	794 79	\$378 57	15,553 72	2,299 33	17,843 05	13,024 06	4,818 99	.....
Winona.....	Minnesota.....	8,070 72	4,376 24	.....	12,446 96	1,544 07	13,991 03	9,171 24	4,819 79	.....
Worcester.....	Ohio.....	4,763 94	1,025 74	.....	5,789 68	3,565 17	9,354 83	7,018 26	2,336 57	.....
Worcester.....	Massachusetts.....	52,543 76	10,983 70	.....	63,527 46	14,314 91	77,842 39	60,533 10	17,309 29	.....
Zanesville.....	Ohio.....	8,178 52	655 69	342 67	9,176 88	4,416 13	13,593 01	7,940 43	5,652 58	.....
Total.....	.....	2,660,215 81	591,681 10	134,659 39	3,386,499 30	379,985 30	3,765,764 60	3,237,711 07	530,747 47	\$2,753 94

A. D. HAZEN,
Third Assistant Postmaster-General.

No. 6.—*Postage-stamps, stamped envelopes, newspaper-wrappers, and postal cards issued during the fiscal year ended June 30, 1878.*
ORDINARY POSTAGE-STAMPS.

Quarter ended—	NUMBER AND DENOMINATIONS OF STAMPS.									Value.
	1-cent.	2-cent.	3-cent.	5-cent.	6-cent.	10-cent.	15-cent.	30-cent.	90-cent.	
September 30, 1877	34,402,700	15,523,400	115,943,700	1,968,780	1,523,350	1,651,880	123,240	65,600	12,040	\$4,545,826
December 31, 1877	43,103,600	16,756,500	118,525,600	2,247,640	1,866,800	1,613,860	233,090	105,010	2,960	4,740,794
March 31, 1878	45,931,400	20,013,000	139,316,300	2,981,640	1,727,500	2,444,470	360,640	180,550	4,150	5,378,928
June 30, 1878	40,286,700	17,993,600	118,542,900	2,658,040	1,419,500	2,145,270	193,700	60,500	4,700	4,903,060
Total	163,734,400	70,386,500	483,398,500	9,834,100	5,936,550	7,855,490	970,600	411,960	23,850	19,468,618

NEWSPAPER AND PERIODICAL STAMPS.

Quarter ended—	NUMBER AND DENOMINATIONS OF STAMPS.													Value.
	2-cent.	3-cent.	4-cent.	6-cent.	8-cent.	9-cent.	10-cent.	19-cent.	24-cent.	36-cent.	48-cent.	60-cent.	72-cent.	
September 30, 1877	84,575	32,100	45,325	40,475	25,090	7,730	54,285	32,590	26,855	12,350	9,045	11,490	4,945	
December 31, 1877	63,740	24,960	31,600	27,120	16,565	5,190	42,005	20,720	17,490	9,905	7,295	9,335	4,855	
March 31, 1878	104,910	43,510	52,810	44,230	25,650	7,450	64,775	35,035	30,330	15,450	14,045	12,820	8,070	
June 30, 1878	75,265	29,050	35,990	33,055	20,115	4,630	47,705	23,220	20,455	10,690	7,640	8,615	3,945	
Total	327,790	128,920	165,735	144,880	89,430	24,990	208,770	111,555	95,130	48,485	36,965	42,260	21,915	

Quarter ended—	NUMBER AND DENOMINATIONS OF STAMPS—Continued.											Value.
	84-cent.	96-cent.	\$1.92.	\$3.	\$6.	\$9.	\$12.	\$24.	\$36.	\$48.	\$60.	
September 30, 1877	6,910	12,910	8,250	7,220	3,686	2,336	2,783	972	825	660	961	\$318,417 80
December 31, 1877	4,910	7,870	5,940	6,319	2,741	1,989	1,902	1,292	599	325	960	249,640 20
March 31, 1878	6,345	14,040	9,575	8,317	3,165	1,449	1,984	1,648	377	253	872	264,991 30
June 30, 1878	4,590	8,815	5,475	5,499	2,763	1,530	2,033	1,177	470	540	998	260,796 00
Total	21,965	42,935	29,280	27,225	12,355	6,564	8,500	4,099	2,271	1,776	3,791	1,083,845 30

No. 6.—*Postage stamps, stamped envelopes, newspaper-wrappers, and postal cards issued during the fiscal year ended June 30, 1878*—Continued.

ORDINARY STAMPED ENVELOPES AND WRAPPERS.

Quarter ended—	NUMBER AND DENOMINATIONS OF ENVELOPES.										NEWSPAPER-WRAPPERS.			Value.
	1-cent.	2-cent.	3-cent.	5-cent.	6-cent.	10-cent.	15-cent.	30-cent.	90-cent.	1-cent.		2-cent.		
September 30, 1877	5,593,750	590,250	14,173,500	14,750	94,150	950	2,700				5,687,750	614,250	\$695,739.32	
December 31, 1877	5,949,250	445,000	15,642,050	24,100	50,400	6,100					5,938,500	462,750	692,040.12	
March 31, 1878	6,115,750	565,000	16,352,300	27,000	52,700	500	2,500	750	100		6,043,000	619,500	726,596.31	
June 30, 1878	5,776,750	660,500	13,218,200	18,750	57,700	1,000	2,100	500			6,465,250	569,500	678,373.66	
Total	23,475,500	3,169,000	61,598,050	84,600	184,950	7,850	5,300	1,250	100		24,934,500	2,266,000	2,722,743.51	

Quarter ended—	NUMBER AND DENOMINATIONS OF ENVELOPES.								Value.
	1-cent.	2-cent.	3-cent.	5-cent.	6-cent.	10-cent.	1-cent.		
September 30, 1877	425,000	537,000	15,180,750	7,000	38,000			\$591,429.95	
December 31, 1877	475,000	595,500	16,761,000	5,000	44,500			575,669.50	
March 31, 1878	531,500	601,000	16,430,250	4,500	41,500			565,517.05	
June 30, 1878	431,500	549,000	15,140,750	3,000	41,500			580,409.05	
Total	1,863,000	2,282,500	63,512,750	19,500	165,500			2,183,025.25	

STAMPED ENVELOPES BEARING A REQUEST TO RETURN.

Quarter ended—	NUMBER AND DENOMINATIONS OF ENVELOPES.						Value.
	1-cent.	2-cent.	3-cent.	5-cent.	6-cent.	10-cent.	
September 30, 1877	425,000	537,000	15,180,750	7,000	32,000	2,000	\$591,499.85
December 31, 1877	475,000	595,500	16,761,000	5,000	44,500	.....	575,669.30
March 31, 1878	531,500	601,000	16,430,250	4,500	41,500	.....	595,517.05
June 30, 1878	431,500	549,000	15,140,750	3,000	41,500	.....	520,409.05
Total	1,863,000	2,982,500	63,512,750	19,500	165,500	2,000	2,183,092.25

POSTAL CARDS.

Quarter ended—		Number.	Amount.
September 30, 1877	.....	45,469,000	\$454,690
December 31, 1877	.....	52,984,500	529,845
March 31, 1878	.....	50,630,500	506,305
June 30, 1878	.....	51,947,000	519,470
Total	.....	200,630,000	2,006,300

OFFICIAL POSTAGE-STAMPS.

Quarter ended—	NUMBER AND DENOMINATIONS OF STAMPS.											Value.
	1-cent.	2-cent.	3-cent.	6-cent.	7-cent.	10-cent.	12-cent.	15-cent.	24-cent.	30-cent.	90-cent.	
September 30, 1877	292,200	226,810	3,154,300	481,450	100	58,600	78,755	58,440	13,600	59,150	46,950	\$218,167 60
December 31, 1877	177,200	159,400	3,532,600	362,950	.....	53,000	59,150	53,940	4,550	92,680	10,150	170,335 60
March 31, 1878	66,500	105,500	3,057,300	153,150	.....	15,000	33,900	7,340	5,950	3,750	8,250	120,486 00
June 30, 1878	311,000	169,900	2,342,000	307,300	95	10,075	28,235	5,525	7,125	13,125	3,475	109,206 00
Total	846,900	661,600	12,086,200	1,303,850	125	136,675	200,030	125,525	31,225	98,705	68,825	\$18,094 60

OFFICIAL STAMPED ENVELOPES.

Quarter ended—	NUMBER AND DENOMINATIONS OF ENVELOPES.											Value.
	1-cent.	2-cent.	3-cent.	6-cent.	10-cent.	12-cent.	15-cent.	30-cent.	1-cent.	2-cent.	NEWSPAPER-WRAP- PERS.	
September 30, 1877	.....	172,000	2,781,550	84,250	.....	.....	.....	.....	.....	750,040	.....	\$100,366 50
December 31, 1877	.....	309,000	3,126,300	55,650	.....	.....	.....	.....	.....	502,000	1,000	108,948 00
March 31, 1878	.....	231,500	4,214,800	110,350	.....	.....	.....	.....	.....	.....	.....	138,427 80
June 30, 1878	125	84,050	3,863,000	76,225	.....	.....	.....	.....	.....	400,250	250	196,810 80
Total	125	816,550	13,965,550	396,475	200	300	200	295	1,652,250	1,250	.....	\$474,553 10

No. 6.—*Postage-stamps, stamped envelopes, newspaper-wrappers, and postal cards issued during the fiscal year ended June 30, 1878—Continued.*

RECAPITULATION.

Articles.	Whole number.	Value.
Ordinary postage-stamps.....	742,461,940	\$19,468,618 00
Newspaper and periodical stamps.....	1,609,578	1,093,845 30
Ordinary stamped envelopes—plain.....	88,514,600	2,412,102 91
Ordinary stamped envelopes—request.....	67,815,250	2,153,025 25
Newspaper-wrappers.....	97,200,500	304,645 60
Postal cards.....	900,630,000	2,006,300 00
Official postage-stamps.....	15,551,660	612,094 60
Official stamped envelopes and wrappers.....	16,783,125	474,553 10
Aggregate.....	1,160,596,653	28,567,184 76

A. D. HAZEN,
Third Assistant Postmaster-General.

No. 7.—*Postage-stamps, stamped envelopes, newspaper-wrappers, and postal cards issued during the fiscal year ended June 30, 1878.*

Description.	Quarter ended September 30, 1877.	Quarter ended December 31, 1877.	Quarter ended March 31, 1878.	Quarter ended June 30, 1878.	Total.
<i>Ordinary postage-stamps.</i>					
One-cent	34, 402, 700	43, 103, 600	45, 931, 400	40, 296, 700	163, 734, 400
Two-cent	15, 523, 400	16, 756, 500	20, 093, 000	17, 993, 600	70, 366, 500
Three-cent	115, 943, 700	118, 525, 600	130, 316, 300	118, 542, 900	483, 328, 500
Five-cent	1, 968, 780	2, 247, 640	2, 961, 640	2, 656, 040	9, 834, 100
Six-cent	1, 523, 350	1, 266, 200	1, 727, 500	1, 419, 500	5, 936, 550
Ten-cent	1, 651, 880	1, 613, 860	2, 444, 470	2, 145, 270	7, 855, 480
Fifteen-cent	183, 240	234, 020	360, 640	193, 700	970, 600
Thirty-cent	65, 600	105, 010	180, 850	60, 500	411, 960
Ninety-cent	12, 040	2, 960	4, 150	4, 700	23, 850
Value	\$4, 545, 836 00	\$4, 740, 794 00	\$5, 378, 928 00	\$4, 830, 060 00	\$19, 466, 618 00
<i>Newspaper and periodical stamps.</i>					
Two-cent	84, 575	63, 740	104, 210	75, 265	327, 790
Three-cent	32, 100	24, 260	43, 510	29, 050	128, 920
Four-cent	45, 335	31, 600	52, 810	35, 990	165, 735
Six-cent	40, 475	27, 120	44, 230	33, 055	144, 880
Eight-cent	25, 090	18, 565	25, 650	20, 115	89, 420
Nine-cent	7, 730	5, 190	7, 450	4, 090	24, 990
Ten-cent	54, 285	42, 005	64, 775	47, 705	208, 770
Twelve-cent	32, 580	20, 720	35, 035	23, 230	111, 555
Twenty-four-cent	26, 855	17, 490	30, 330	20, 455	95, 130
Thirty-six-cent	12, 350	9, 995	15, 450	10, 690	48, 485
Forty-eight-cent	9, 985	7, 295	14, 045	7, 640	38, 965
Sixty-cent	11, 490	9, 335	12, 820	8, 615	42, 260
Seventy-two-cent	4, 945	4, 955	8, 070	3, 945	21, 915
Eighty-four-cent	6, 210	4, 910	6, 345	4, 520	21, 985
Ninety-six-cent	12, 210	7, 870	14, 040	8, 815	42, 935
One dollar and ninety-two cent.	8, 250	5, 900	9, 575	5, 475	29, 200
Three-dollar	7, 220	6, 219	8, 317	5, 499	27, 255
Six-dollar	3, 686	2, 741	3, 165	2, 763	12, 355
Nine-dollar	2, 336	1, 269	1, 449	1, 530	6, 584
Twelve-dollar	2, 783	1, 802	1, 802	2, 033	8, 500
Twenty-four-dollar	972	1, 232	648	1, 177	4, 029
Thirty-six-dollar	825	599	377	470	2, 271
Forty-eight-dollar	660	325	253	540	1, 778
Sixty-dollar	961	960	1, 72	998	3, 791
Value	\$318, 411 80	\$249, 640 20	\$264, 991 30	\$260, 796 00	\$1, 093, 845 30
<i>Ordinary stamped envelopes and wrappers.</i>					
One-cent	5, 593, 750	5, 989, 250	6, 115, 750	5, 776, 750	23, 475, 500
Two-cent	598, 500	845, 000	865, 000	860, 500	3, 169, 000
Three-cent	14, 173, 500	15, 842, 050	16, 352, 300	15, 318, 200	61, 586, 050
Five-cent	14, 750	24, 100	27, 000	18, 750	84, 600
Six-cent	24, 150	50, 400	52, 700	57, 700	184, 950
Ten-cent	250	6, 100	500	1, 000	7, 850
Fifteen-cent	2, 700	.....	2, 500	100	5, 300
Thirty-cent .....	.....	.....	750	500	1, 250
Ninety-cent .....	.....	100	.....	.....	100
One-cent wrappers	5, 687, 750	5, 838, 500	6, 943, 000	6, 465, 250	24, 934, 500
Two-cent wrappers	614, 250	462, 750	619, 500	569, 500	2, 266, 000
Value	\$625, 739 32	\$692, 040 12	\$726, 596 21	\$678, 372 86	\$2, 722, 748 51
<i>Stamped envelopes, bearing a request to return.</i>					
One-cent	425, 000	475, 000	531, 500	431, 500	1, 863, 000
Two-cent	537, 000	595, 500	601, 000	549, 000	2, 282, 500
Three-cent	15, 180, 750	16, 761, 000	16, 430, 250	15, 140, 750	63, 512, 750
Five-cent	7, 000	5, 000	4, 500	3, 000	19, 500
Six-cent	38, 000	44, 500	41, 500	41, 500	165, 500
Ten-cent	2, 000	.....	.....	.....	2, 000
Value	\$521, 429 85	\$575, 669 30	\$565, 517 05	\$520, 409 05	\$2, 183, 025 25

No. 7.—*Postage-stamps, stamped envelopes, &c.*—Continued.

Description.	Quarter end- ed Septem- ber 30, 1877.	Quarter end- ed Decem- ber 31, 1877.	Quarter end- ed March 31, 1878.	Quarter end- ed June 30, 1878.	Total.
<i>Postal cards.</i>					
One-cent	45,468,000	52,984,500	50,930,500	51,847,000	200,630,000
Value.....	\$454,680 00	\$529,845 00	\$509,305 00	\$512,470 00	\$2,006,300 00
<i>Official postage-stamps.</i>					
One-cent	2-2,200	177,200	66,500	311,000	836,900
Two-cent	226,800	159,400	103,500	169,900	661,600
Three-cent	3,154,300	3,532,600	3,057,300	2,342,000	12,086,200
Six-cent	480,450	362,950	155,150	307,300	1,305,850
Seven-cent	100			25	125
Ten-cent	58,000	53,000	15,000	10,075	136,075
Twelve-cent	78,755	59,150	33,900	22,225	200,030
Fifteen-cent	58,480	53,940	7,580	5,525	125,525
Twenty-four-cent	13,600	4,550	5,950	7,125	31,225
Thirty-cent	59,150	92,600	3,750	13,125	98,705
Ninety-cent	46,950	10,150	8,250	3,475	68,825
Value.....	\$218,167 60	\$170,235 00	\$120,486 00	\$109,206 00	\$618,094 60
<i>Official stamped envelopes.</i>					
One-cent				125	125
Two-cent	172,000	309,000	251,500	84,050	816,550
Three-cent	2,781,550	3,126,200	4,914,000	3,863,000	13,963,550
Six-cent	84,250	55,650	110,350	76,225	398,475
Ten-cent				200	200
Twelve-cent				300	300
Fifteen-cent				200	200
Thirty-cent				225	225
One-cent wrappers	750,000	502,000		400,250	1,652,250
Two-cent wrappers		1,000		250	1,250
Value.....	\$100,366 50	\$108,948 00	\$138,427 80	\$126,810 80	\$474,553 10

RECAPITULATION.

Description.	Number.	Value.
Ordinary postage-stamps.....	742,461,940	\$19,468,618 00
Ordinary stamped envelopes—plain request	88,514,600	2,418,102 91
	67,845,250	2,183,025 25
Total stamped envelopes.....	156,359,850	4,601,128 16
Newspaper-wrappers	27,200,500	304,645 60
Newspaper and periodical stamps.....	1,609,578	1,093,845 30
Postal cards	200,630,000	2,006,300 00
Official postage-stamps.....	15,551,660	618,094 60
Official stamped envelopes	16,783,125	474,553 10
Whole number and value of stamps, envelopes, and wrappers.....	1,160,596,633	28,567,174 76

A. D. HAZEN.
Third Assistant Postmaster-General.

OFFICIAL POSTAGE-STAMPS.

OFFICIAL STAMPED ENVELOPES AND WRAPPERS.

A. D. HAZEN,
Third Assistant Postmaster-General.

No. 9.—Statement showing the increase in the issue of postage-stamps, stamped envelopes, newspaper-wrappers, and postal cards, including the issues for official use, for the year ended June 30, 1874, over those of the preceding year.

Description.	1877.		1878.		Increase.		Per cent. Increase.	
	Number.	Amount.	Number.	Amount.	Number.	Amount.	Number.	Amount.
Ordinary postage-stamps.....	689,590,670	\$18,181,676 00	742,461,940	\$19,468,618 00	52,861,270	\$1,286,942 00	7.66+	7.07+
Newspaper and periodical stamps.....	1,384,709	1,000,605 10	1,609,578	1,083,845 30	224,869	82,240 20	15.90+	9.31+
Ordinary stamped envelopes, plain.....	84,285,700	2,281,574 11	86,514,600	2,418,102 91	4,228,900	136,528 80	5.01+	5.96+
Ordinary stamped envelopes, registered.....	64,374,500	2,069,995 65	67,815,250	2,183,025 25	3,470,750	113,029 60	5.39+	5.46+
Newspaper-wrappers.....	21,991,250	265,362 00	27,200,500	304,645 60	5,209,250	39,283 60	23.68+	14.80+
Postal cards.....	170,015,500	1,700,155 00	200,630,000	2,006,300 00	30,614,500	306,145 00	18.00+	18.00+
Total ordinary issues.....	1,031,636,329	25,498,367 86	1,192,281,868	27,474,537 06	160,645,539	1,976,169 20	9.36+	7.74+
Add official postage-stamps.....	13,667,145	614,107 90	15,551,660	618,084 60	1,884,515	3,967 40	12.14+	.65+
Add official stamped envelopes.....	14,750,445	412,361 41	16,783,125	474,553 10	2,032,680	62,191 69	13.78+	15.04+
Aggregate of all issues.....	1,060,253,919	26,525,836 47	1,160,596,653	28,567,164 76	100,342,734	2,041,346 29	9.46+	7.69+

A. D. HAZEN,
Third Assistant Postmaster-General.

No. 10.—Statement showing amount of dead mail matter treated in the Division of Dead Letters during the fiscal year ended June 30, 1876.

CLASSIFICATION AND AMOUNT OF MAIL TREATED.		MODE OF TREATMENT.			
Class.	Number.	Class.	Delivered unopened.	Opened.	On hand.
Domestic mailed letters: Unopened from last fiscal year..... Received during the year.....	10,000 2,540,886	Ordinary domestic mailed letters	624,040	2,509,856	17,000
Unavailable letters: Held for postage— From last fiscal year..... Received during the year..... Containing unavailable matter..... Misdirected..... Blank.....	9,540 304,630 2,068 65,007 7,587	Unavailable letters— Held for postage..... Containing unavailable matter..... Misdirected..... Blank.....	6184,404 2,068 59,460 61,547	1118,950 2,068 59,460 7,587	110,984
Foreign matter— On hand from last fiscal year (letters)..... Received during the year (letters)..... Printed matter returnable to country of origin	3,660 209,432 8,836	Foreign matter: Letters returned to country of origin..... Printed matter returned to country of origin	209,952 8,836	.....	3,140
Third-class matter (packages, &c.)	1221,928	Third-class matter .....	.....	24,083	.....
Total.....	3,186,805	Total.....	433,779	2,721,902	31,124

* Including ordinary mail, 1,997,651; drop or local, 385,700; returned from hotels, 41,053; fictitious address, 20,701; returned from foreign countries (domestic origin), 101,946; ship and steamboat letters brought by sea outside the mails, 1,797; and registered, 3,053.

† Including ordinary, 213,435; registered, 3,053.

‡ Card and request letters. § Forwarded to address upon receipt of postage. c Postage not being paid within thirty days. d Awaiting return of notice.

e Address corrected and letters forwarded.

A. D. HAZEN,
Third Assistant Postmaster-General.

DISPOSITION OF DEAD LETTERS.

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Received.		How disposed of.	
Letters.		Letters.	
Held for postage:		Held for postage:	
Domestic.....	288,472	Treated with circulars—	
Foreign short paid.....	16,517	Domestic.....	1343,454
		Foreign short paid.....	113,105
Misdirected.....	304,689	Official and Navy forwarded.....	256,559
Blank.....	66,007	Opened.....	1,841
Containing unmailable matter.....	7,587		46,329
Hotel.....	2,066		
Fictitious.....	41,053	Misdirected:	
		Turned over to foreign branch.....	4,466
		Addresses corrected and forwarded.....	2,061
		Opened.....	59,440
		Blank: Opened.....	
		Containing unmailable matter: Opened.....	
		Hotel:	
		Turned over to foreign branch.....	3,123
		Opened.....	37,831
		Fictitious:	
		Turned over to foreign branch.....	40,687
		Opened.....	17,996
Total.....	480,015	Total.....	480,015
		Packages.	
		Examined and turned over to property branch.....	14,352
		Total.....	14,352

* About 40,000 of the letters in this item were "lottery" letters originating in Canada.

† For disposition of these letters see table on following page.

‡ For contents and disposition of these letters see table on following page.

No. 12.—*Classification and disposition of unmailable matter*—Continued.

Disposition of letters treated with circulars.		T	Contents and disposition of letters opened.	Total.
A waiting reply to circular at beginning of year.....	9,549			
Treated with circulars during year.....	256,559	256,108	Money 3,983 Minors 1,353 Subminors 1,953 Property 1,801 Photographs 1,750 Stamps 4,697 Nothing of value 153,732	171,259
Forwarded upon reply to circulars.....	182,563			
Turned over to opening branch.....	72,561			
A waiting reply to circular at close of year.....	10,984	256,108	Total number of letters opened..... Containing valuables—turned over to different branches..... 78,438 Containing nothing of value—returned to writers..... 77,294 Containing nothing of value—destroyed..... 153,732	171,259
Value of stamps received with replies to circulars.....	\$5,833 03			

Whole number of letters and packages received..... 503,916
 Delivered to addressees..... 186,485
 Returned to senders..... 78,459
 Turned over to other branches of office..... 136,715
 Destroyed..... 77,294
 On hand at close of year..... 10,984

503,916

A. D. HAZEN,
 Third Assistant Postmaster-General.

FOREIGN DEAD LETTERS.

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No. 13.—Statement showing the number of foreign dead letters received and disposed of during the fiscal year ended June 30, 1878.

ORIGINATING IN FOREIGN COUNTRIES.

RECEIVED.		DISPOSITION.			
Class.	Number.	Class.	Returned to country of origin.	Delivered to addressees.	On hand.
Registered letters—		Registered letters.....	3,568	49	76
On hand July 1, 1877.....	57				
Received during the year..	3,636	Ordinary letters.....	906,998	37	3,064
Ordinary letters—		Printed matter, samples, &c.....	8,836		
On hand July 1, 1877.....	3,603				
Received during the year..	905,796				
Printed matter, samples, &c., for return	8,836				
Total.....	921,926	Total.....	918,702	86	3,140

ORIGINATING IN THE UNITED STATES AND RETURNED BY FOREIGN COUNTRIES.

RECEIVED.	
Class.	Number.
Registered letters.....	433
Ordinary letters.....	96,668
Printed matter, samples, &c.....	4,841
Total.....	101,942

Statement of undelivered correspondence returned to and received from each of the several foreign countries.

Country.	Returned to—				Received from—			
	Registered.	Ordinary.	Printed.	Total.	Registered.	Ordinary.	Printed.	Total.
Austro-Hungary.....	586	3,004	611	4,201				
Argentine Republic.....		26		26				
Belgium.....	26	638	420	1,084				
Bermuda.....		150		150	1	137		138
Brazil.....	11	245		256		124		124
British India.....	7	269	1	277				
British Guiana.....	1	54		55				
Canada.....	619	96,037	4	96,660	187	44,000		44,187
Cuba.....	9	1,066		1,075				
Denmark.....	22	1,549	18	1,589				
Danish West Indies.....		190		190		51	21	72
Egypt.....	3	24	4	31				
Ecuador.....	2	11		13				
France.....	115	4,256	4,923	9,294				
French West Indies.....		24		24				
Great Britain.....	527	48,335	632	49,544	229	30,636		30,865
Germany.....	1,098	24,382	221	25,701				
Greece.....	5	69	23	97				

Statement of undelivered correspondence returned to and received from, &c.—Continued.

Country.	Returned to —				Received from—			
	Registered.	Ordinary.	Printed.	Total.	Registered.	Ordinary.	Printed.	Total.
Guatemala.....		39		39				
Hong-Kong.....	1	133		134	1	107		108
Hawaiian Kingdom.....	3	254		257		34		34
Italy.....	154	6,761	1,092	8,007				
Jamaica.....		210	1	211		129		129
Japan.....	7	318		325		134		134
Luxemburg.....	13	222	2	237				
Mexico.....		631		631				
Norway.....	46	3,037	19	3,102				
Netherlands.....	24	907	460	1,391				
Netherlands West Indies.....		93		93				
Newfoundland.....	5	240		245		212		212
New South Wales.....	13	704		717	6	444		450
New Zealand.....	11	421	1	433	7	436		443
Portugal.....	14	2,426	21	2,461				
Porto Rico.....		299		299				
Queensland.....	6	112		118	1	196		127
Roumania.....	6	22	13	41				
Russia.....	78	1,751	77	1,906				
Spain.....	16	423	165	604				
Servia.....	1	2		3				
Sweden.....	58	5,213	59	5,330				
Switzerland.....	80	1,652	18	1,750				
Salvador.....		8		8				
Trinidad.....		37		37				
Turkey.....	1	21	1	23				
Venezuela.....		33		33				
Postal Union.....					17,415	4,820		22,235
Miscellaneous.....					1	2,683		2,684
Total.....	3,568	206,298	8,835	218,702	433	96,698	4,841	101,942

Foreign postage reclaimed by United States, 799 francs 3 centimes; by foreign countries, 90 francs 65 centimes.

A. D. HAZEN,
Third Assistant Postmaster-General.

No. 14.—Statement showing the detailed classification and disposition of letters containing valuable inclosures for the fiscal year ended June 30, 1878.

Classification.	Delivered.	Filed for reclama- tion.	Outstanding in hands of post- masters.	Total.
Money	16,481	5,398	2,920	24,699
Checks, drafts, bills of exchange, letters of credit.....	6,206	422	150	6,778
Money-orders, foreign and domestic.....	3,294	164	75	3,533
Notes and due-bills	966	85	35	1,086
Deeds and land-warrants.....	275	29	20	324
Mortgages and assignments, releases of, &c	50	.....	3	53
Leases, assignments of, &c.....	35	.....	1	36
Passage and railroad tickets	187	51	7	245
Bank-books	6	2	.....	8
Pension-certificates and wills.....	11	1	.....	12
Receipts, bills of lading, &c.....	9,407	824	.....	10,231
Legal documents	2,054	56	.....	2,142
Sealed foreign letters inclosed	1,106	84	.....	1,190
Sealed domestic letters inclosed.....	221	25	.....	246
Pension-papers, registered-letter receipts, &c	414	9	.....	423
Locks of hair	2,759	166	.....	2,925
Paid notes, canceled checks, &c.....	580	17	.....	597
Photographs	19,423	4,933	.....	24,356
Postage-stamps	40,393	4,251	.....	44,644
Jewelry	1,259	896	.....	2,155
Dry-goods and clothing	1,131	1,603	.....	2,734
Books, pictures, and music	3,722	2,684	.....	6,406
Merchandise and samples	7,377	4,498	.....	11,875
Cutlery, dental and other instruments	226	248	.....	474
Manuscripts	247	316	.....	563
Miscellaneous	12,043	6,137	.....	18,180
Total	129,903	32,801	3,211	165,915

A. D. HAZEN.
Third Assistant Postmaster-General

No. 15.—Number of registered letters transmitted through the mails from each State and Territory in the United States during the fiscal year ended June 30, 1878

States and Territories.	Quarter ended September 30, 1877.			Quarter ended December 31, 1877.			Quarter ended March 31, 1878.			Quarter ended June 30, 1878.			Total.			Grand total of letters registered for year ended June 30, 1878.	Fees received.	Total increase over the year 1877.
	Domestic.	Foreign.	Free.	Domestic.	Foreign.	Free.	Domestic.	Foreign.	Free.	Domestic.	Foreign.	Free.	Domestic.	Foreign.	Free.			
Alabama.....	9,701	49	1,376	13,501	87	1,524	17,159	77	1,557	15,975	57	1,726	56,336	970	9,185	63,791	\$5,660	60
Arkansas.....	9,065	33	1,192	12,106	24	1,446	16,632	53	1,682	14,521	32	1,454	52,324	146	5,778	108,199	5,247	00
California.....	19,259	3,489	1,348	23,952	4,234	1,565	29,601	3,722	1,369	31,571	3,418	1,687	87,367	14,873	9,959	106,199	10,924	00
Colorado.....	8,601	130	613	10,155	905	1,043	9,201	617	1,426	10,172	370	1,440	38,219	282	2,051	41,092	3,904	10
Connecticut.....	10,907	448	36,989	12,805	711	37,033	14,167	561	37,021	12,796	542	37,043	50,975	2,262	2,046	50,923	5,923	70
Delaware.....	1,646	15	68	6,403	25	186	1,886	19	119	1,758	19	124	7,105	78	70	7,590	7,118	30
Florida.....	6,103	26	530	6,403	47	731	9,075	94	714	7,769	58	777	20,740	225	2,756	32,761	3,000	50
Georgia.....	12,184	594	1,437	17,683	107	1,453	21,653	174	1,774	18,325	87	1,784	68,839	427	6,444	76,334	7,022	60
Illinois.....	54,261	1,811	6,760	70,317	423	8,308	78,363	9,471	8,514	67,207	1,789	7,874	970,068	8,621	8,720	179,943	97,888	90
Indiana.....	35,713	181	2,542	42,279	279	2,630	51,890	263	2,003	42,431	189	7,874	170,313	912	10,204	192,073	17,132	50
Iowa.....	27,024	305	2,962	48,640	506	3,366	56,786	518	1,853	47,681	409	8,024	180,131	1,734	10,204	192,073	17,132	50
Kansas.....	19,077	134	1,047	24,342	222	1,689	30,774	191	1,149	28,487	153	1,215	108,720	734	5,100	108,554	10,345	40
Kentucky.....	14,462	129	439	16,455	195	1,595	20,999	152	1,731	19,546	198	1,457	71,904	602	2,292	74,617	7,329	50
Louisiana.....	16,345	509	787	19,049	653	780	20,987	723	714	17,603	601	735	81,702	9,492	2,030	80,426	7,739	60
Maine.....	17,100	491	960	21,461	614	1,056	21,976	589	804	21,165	482	667	81,702	1,840	2,547	87,426	8,389	90
Maryland.....	10,593	365	1,666	12,248	437	1,692	13,157	374	1,404	13,638	404	724	48,706	1,540	2,354	53,644	5,198	60
Massachusetts.....	27,704	2,983	16,666	32,039	4,063	16,617	33,315	3,310	16,305	28,630	3,405	16,395	125,648	13,761	66,003	205,452	13,944	90
Michigan.....	32,452	1,323	3,630	40,105	2,008	3,086	41,644	1,750	2,739	37,964	1,667	4,409	152,165	1,707	11,804	171,147	15,834	90
Minnesota.....	19,141	35	1,145	24,792	594	1,611	30,244	1,540	9,992	28,540	1,475	1,160	107,607	1,860	5,791	115,457	10,967	60
Mississippi.....	10,253	573	3,145	14,225	65	1,426	19,437	81	9,243	16,627	64	1,834	50,532	1,945	5,358	65,135	5,977	70
Missouri.....	36,037	573	3,145	46,465	875	2,710	54,955	782	2,943	48,687	652	2,769	186,174	2,894	10,245	199,317	18,097	20
Montana.....	4,267	144	1,316	16,196	244	1,316	16,196	244	1,316	14,641	393	1,363	54,332	1,018	5,189	60,479	5,435	00
Nevada.....	2,202	422	257	5,378	764	311	5,809	456	316	6,063	670	963	24,032	2,319	1,153	25,497	2,434	00
New Hampshire.....	8,618	444	542	10,209	503	587	11,072	480	694	10,377	445	918	40,276	1,912	7,112	43,900	4,194	80
New Jersey.....	12,650	957	605	14,956	953	609	16,199	890	694	14,439	932	685	58,255	3,692	2,533	61,460	6,192	70
New York.....	105,281	11,502	52,369	108,901	12,928	58,061	110,613	12,920	67,726	103,749	12,928	63,459	494,863	51,996	941,615	621,304	48,075	10
North Carolina.....	14,248	34	1,352	18,029	77	1,492	21,746	60	1,225	20,470	31	1,161	74,866	4,424	17,752	79,563	7,506	80
Ohio.....	39,311	963	3,365	63,094	1,211	3,486	70,386	1,196	5,483	61,704	1,012	5,578	254,503	9,202	6,140	266,683	23,873	10
Oregon.....	4,479	35	400	6,467	48	561	7,864	61	461	6,076	59	437	24,734	3,203	1,839	26,677	2,493	10
Pennsylvania.....	60,247	1,925	3,387	75,856	595	3,890	90,078	2,476	3,141	75,079	246	1,194	292,909	9,316	15,202	316,010	30,515	40
Rhode Island.....	3,791	471	116	3,038	525	136	3,018	476	141	3,504	433	123	15,181	1,016	516	17,613	1,009	70
South Carolina.....	7,925	60	890	11,696	61	996	11,965	122	933	11,916	63	926	43,422	423	2,744	47,474	4,713	40
Tennessee.....	14,775	99	1,616	16,236	106	1,774	19,174	123	1,917	17,315	145	1,940	71,531	423	2,747	79,194	7,194	70
Texas.....	23,892	371	2,497	31,429	549	3,095	39,135	696	3,309	30,945	401	3,254	135,321	1,345	12,535	140,011	12,745	60
Vermont.....	10,194	40	743	13,419	509	739	13,075	509	741	11,958	405	741	48,560	1,435	1,144	53,699	5,043	50
Virginia.....	17,544	104	1,313	20,549	149	1,708	22,073	168	1,692	18,439	149	1,643	83,423	1,684	6,266	90,309	8,404	30
West Virginia.....	9,110	31	501	10,544	60	671	12,072	168	576	11,472	139	563	43,204	173	2,431	45,904	4,337	70
Wisconsin.....	31,017	539	1,261	45,012	735	3,660	47,092	779	3,464	40,092	703	3,660	164,438	2,753	13,704	190,200	16,679	40
Alaska.....	3	3	3	14	3	3	14	3	3	14	3	3	3	3	3	3	3	3

Arizona.....	1,974	151	110	2,098	92	192	2,476	17	100	2,406	15	103	8,894	70	435	9,390	895 40	1,385
Dakota.....	2,681	78	298	4,058	183	324	5,919	162	301	5,428	308	329	90,444	639	1,931	93,367	9,107 60	8,670
Dist. of Columbia.....	2,105	604	13,210	3,450	964	16,231	9,592	865	17,138	10,922	354	9,835	30,770	2,817	56,435	59,242	3,993 70	5,545
Iaho.....	2,864	23	33	3,384	32	84	3,110	24	40	2,754	21	111	1,782	102	10	1,892	1,188 40	1,570
Indian Ter.....	1,897	2	108	1,811	6	91	2,553	4	66	2,378	3	23	3,340	15	997	3,632	1,833 50	2,559
Montana.....	2,661	31	133	3,380	51	178	4,013	51	138	3,898	47	170	9,074	180	620	14,973	1,823 40	3,606
New Mexico.....	1,805	16	171	2,046	12	117	2,341	16	93	2,151	11	63	3,333	47	653	3,798	1,831 00	2,616
Utah.....	4,981	100	211	5,706	118	253	5,812	113	249	5,254	132	240	21,333	464	681	22,798	2,581 70	2,392
Washington.....	2,132	45	199	3,075	69	140	3,606	60	140	2,867	63	107	11,784	217	579	12,600	1,202 10	2,368
Wyoming.....	2,833	44	250	3,065	68	312	3,206	65	303	2,638	33	301	11,744	210	1,176	13,130	1,195 40	3,388
Total.....	802,455 33	246	174,789	1,022,458	43,014	189,631	1,140,007	40,201	197,041	1,031,061	17,539	187,349	3,996,001	153,993	743,810	4,898,804	414,999 40	550,812
Deduct Alaska.....																		135
																		550,677

RECAPITULATION.

Total domestic.....	3,996,001
Total foreign.....	153,993
Total free.....	748,810
Grand total.....	4,898,804
Total fees received.....	\$414,999 40
Increase over previous year.....	550,677

A. D. HAZEN,
Third Assistant Postmaster General.

No. 16.—*Statement showing the operations of the registered-letter system at the cities of New York, Chicago, and Washington, during the fiscal year ended June 30, 1878.*

Description.	New York.	Chicago.	Washington.	Total.
Number of letters registered	192, 156	40, 361	85, 935	318, 452
Number of registered letters received for delivery	510, 632	279, 179	89, 742	879, 553
Number of registered letters received for distribution	250, 450	308, 8e5	25, 231	584, 566
Number of packages of postage-stamps registered	166, 732			166, 732
Number of stamped-envelope packages distributed	18, 711			18, 711
Number of registered packages of stamped envelopes, postal cards, and postage-stamps received for distribution		64, 035		64, 035
Number of postal-card packages registered	58, 955			58, 955
Number of registered packages and pouches for New York City	313, 839			313, 839
Number of registered packages and pouches in transit	147, 239	2, 479		149, 718
Number of registered packages and pouches made up and mailed	188, 074	152, 232	27, 770	368, 076
Number of through registered pouches received	6, 709	4, 790	2, 503	14, 002
Number of through registered pouches dispatched	10, 509	3, 332	2, 503	16, 344
Number of registered packages received in through pouches	101, 526	143, 284	22, 630	267, 040
Number of registered packages dispatched in through pouches	188, 785	83, 246	12, 250	290, 281
Total number of letters, packages, and pouches handled	2, 154, 317	1, 082, 423	274, 564	3, 511, 304
Value of gold coin received in registered mail at New York	\$575, 000			
Value of bullion received in registered mail at New York	176, 800			

A. D. HAZEN,
Third Assistant Postmaster-General.

No. 17.—*Statement showing the number and value of registered packages forwarded during the fiscal year ended June 30, 1878, for the Post-Office and Treasury Departments.*

Description.	Number of packages.	Value.
Postage-stamps from New York agency	167, 048	\$21, 180, 557 90
Stamped envelopes and newspaper wrappers from Hartford agency	144, 453	5, 330, 326 86
Postal cards from Springfield and New York agencies	61, 512	2, 006, 300 00
Total for the Post-Office Department	373, 013	28, 567, 184 76
Increase over previous year	29, 371	2, 041, 348 29
Mutilated currency received at Treasury Department (Treasurer)	12, 530	254, 119 60
Currency remitted from Treasury Department (Treasurer)	7, 363	43, 021 84
United States bonds, incomplete currency, and national-bank notes sent from Treasury Department (Comptroller of Currency)	812	19, 488, 465 00
Internal-revenue stamps	10, 279	108, 774, 578 75
Documentary and proprietary stamps from New York agency, No. 17,365,016		330, 124 13
Total for Treasury Department	30, 990	128, 890, 609 32
Aggregate	404, 003	157, 457, 794 08

A. D. HAZEN,
Third Assistant Postmaster-General.

UNIVERSAL POSTAL UNION.

CONVENTION OF PARIS.

JUNE, 1878.

This convention, as signed, was in the French language only. The English translation has been added in Washington.

UNIVERSAL POSTAL UNION.

UNION POSTALE UNIVERSELLE
CONCLU ENTRE L'ALLEMAGNE,
LA RÉPUBLIQUE ARGENTINE,
L'AUTRICHE-HONGRIE, LA BEL-
GIQUE, LE BRÉSIL, LE DANE-
MARK ET LES COLONIES DAN-
OISES, L'ÉGYPTE, L'ESPAGNE
ET LES COLONIES ESPAGNOLES,
LES ÉTATS-UNIS DE L'AMÉ-
RIQUE DU NORD, LA FRANCE ET
LES COLONIES FRANÇAISES, LA
GRANDE-BRETAGNE ET DIVER-
SES COLONIES ANGLAISES, L'IN-
DE BRITANNIQUE, LE CANADA,
LA GRÈCE, L'ITALIE, LE JAPON,
LE LUXEMBOURG, LE MEXIQUE,
LE MONTÉNÉGRO, LE NORVÈGE,
LES PAYS-BAS ET LES COLONIES
NÉERLANDAISES, LE PÉROU, LA
PERSE, LE PORTUGAL ET LES
COLONIES PORTUGAISES, LA
ROUMANIE, LA RUSSIE, LA SER-
BIE, LE SALVADOR, LA SUÈDE,
LA SUISSE ET LA TURQUIE.

CONVENTION.

Les soussignés, plénipotentiaires des Gouvernements des pays ci-dessus énumérés, s'étant réunis en Congrès à Paris, en vertu de l'article 18 du Traité constitutif de l'Union générale des Postes, conclu à Berne le 9 octobre 1874, ont, d'un commun accord et sous réserve de ratification, révisé ledit Traité, conformément aux dispositions suivantes :

Universal Postal Union concluded between Germany, the Argentine Republic, Austria-Hungary, Belgium, Brazil, Denmark and the Danish Colonies, Egypt, Spain and the Spanish Colonies, the United States of North America, France and the French Colonies, Great Britain and certain British Colonies, British India, Canada, Greece, Italy, Japan, Luxemburg, Mexico, Montenegro, Norway, the Netherlands and the Netherland Colonies, Peru, Persia, Portugal and the Portuguese Colonies, Roumania, Russia, Servia, Salvador, Sweden, Switzerland, and Turkey.

CONVENTION.

The undersigned, plenipotentiaries of the Governments of the countries above enumerated, being assembled in Congress at Paris, by virtue of Article 18 of the Treaty constituting the General Postal Union, concluded at Berne on the 9th of October, 1874, have, by mutual agreement, and subject to ratification, revised the said Treaty, conformably to the following stipulations:

ARTICLE PREMIER.

Les pays entre lesquels est conclue la présente Convention, ainsi que ceux qui y adhéreront ultérieurement, forment, sous la dénomination d'*Union postale universelle*, un seul territoire postal pour l'échange réciproque des correspondances entre leurs bureaux de poste.

ARTICLE 2.

Les dispositions de cette Convention s'étendent aux lettres, aux cartes postales, aux imprimés de toute nature, aux papiers d'affaires et aux échantillons de marchandises, originaires de l'un des pays de l'Union et à destination d'un autre de ces pays. Elles s'appliquent également, quant au parcours dans le ressort de l'Union, à l'échange postal des objets ci-dessus entre les pays de l'Union et les pays étrangers à l'Union, toutes les fois que cet échange emprunte les services de deux des Parties contractantes, au moins.

ARTICLE 3.

Les administrations des postes des pays limitrophes ou aptes à correspondre directement entre eux, sans emprunter l'intermédiaire des services d'une tierce administration, déterminent, d'un commun accord, les conditions du transport de leurs dépêches réciproques à travers la frontière ou d'une frontière à l'autre.

A moins d'arrangement contraire, on considère comme services tiers les transports maritimes effectués directement entre deux pays, au moyen de paquebots ou bâtiments dépendant de l'un d'eux, et ces transports, de même que ceux effectués entre deux bureaux d'un même pays, par l'intermédiaire de services maritimes ou territoriaux dépendant d'un autre pays, sont régis par les dispositions de l'article suivant.

ARTICLE 1.

The countries between which the present Convention is concluded, as well as those which may join it hereafter, form, under the title of *Universal Postal Union*, a single postal territory for the reciprocal exchange of correspondence between their post-offices.

ARTICLE 2.

The stipulations of this Convention extend to letters, post-cards, printed matter of all kinds, commercial documents and samples of merchandise, originating in one of the countries of the Union and intended for another of those countries. They also apply, so far as regards conveyance within the Union, to the exchange by mail of the articles above mentioned between the countries of the Union and countries foreign to the Union, whenever that exchange makes use of the services of two of the contracting parties at least.

ARTICLE 3.

The Postal Administrations of neighboring countries, or countries able to correspond directly with each other without using the intermediary of the services of a third Administration, determine, by mutual agreement, the conditions of the conveyance of their reciprocal mails across the frontier, or from one frontier to the other.

Unless there be a contrary arrangement, the direct sea conveyance performed between two countries by means of packets or vessels depending upon one of them, shall be considered as a third service; and such conveyance, as well as any performed between two offices of the same country, by the intermediary of maritime or territorial services maintained by another country, is regulated by the stipulations of the following Article.

ARTICLE 4.

La liberté du transit est garantie dans le territoire entier de l'Union.

En conséquence, les diverses administrations postales de l'Union peuvent s'expédier réciproquement, par l'intermédiaire d'une ou de plusieurs d'entre elles, tant des dépêches closes que des correspondances à découvert, suivant les besoins du trafic et les convenances du service postal.

Les correspondances échangées, soit à découvert, soit en dépêches closes, entre deux administrations de l'Union, au moyen des services d'une ou de plusieurs autres administrations de l'Union, sont soumises, au profit de chacun des pays traversés ou dont les services participent au transport, aux frais de transit suivants, savoir :

1° Pour les parcours territoriaux, 2 francs par kilogramme de lettres ou cartes postales, et 25 centimes par kilogramme d'autres objets ;

2° Pour les parcours maritimes, 15 francs par kilogramme de lettres ou cartes postales, et 1 franc par kilogramme d'autres objets.

Il est toutefois entendu :

1° Que partout où le transit est déjà actuellement gratuit ou soumis à des conditions plus avantageuses, ce régime est maintenu, sauf dans le cas prévu à l'alinéa 3° ci-après ;

2° Que partout où les frais de transit maritime sont fixés jusqu'à présent à 6 fr. 50 cent. par kilogramme de lettres ou cartes postales, ces frais sont réduits à 5 francs ;

3° Que tout parcours maritime n'excédant pas 300 milles marins est gratuit, si l'administration intéressée a déjà droit, du chef des dépêches ou correspondances bénéficiant de ce parcours, à la rémunération afférente au transit territorial ; dans le cas contraire, il est rétribué à raison de 2 francs par kilogramme de lettres ou cartes postales et de 25 centimes par kilogramme d'autres objets :

ARTICLE 4.

The right of transit is guaranteed throughout the entire territory of the Union.

Consequently, the several Postal Administrations of the Union may send reciprocally through the intermediary of one or of several of them, as well closed mails as correspondence in open mails, according to the requirements of trade and the convenience of the postal service.

The correspondence exchanged, whether in open or in closed mails, between two Administrations of the Union, by means of the services of one or of several other Administrations of the Union, is subject to the following transit charges, to be paid to each of the countries traversed, or whose services participate in the conveyance, viz :

1st. For territorial conveyance, 2 francs per kilogramme of letters or post-cards, and 25 centimes per kilogramme of other articles ;

2d. For sea conveyance, 15 francs per kilogramme of letters or post-cards, and 1 franc per kilogramme of other articles.

It is, however, understood—

1st. That wherever the transit is already gratuitous at present, or subject to more advantageous conditions, such condition is maintained, except in the case provided for in paragraph 3, following ;

2d. That wherever the rate of sea-transit has hitherto been fixed at 6 francs 50 centimes per kilogramme of letters or post-cards, such rate is reduced to 5 francs ;

3d. That every sea conveyance not exceeding 300 nautical miles is gratuitous if the administration concerned is already entitled, on account of mails or correspondence benefiting by this conveyance, to the remuneration applicable to the territorial transit : in the contrary case, payment is made at the rate of 2 francs per kilogramme of letters or post-cards, and 25 centimes per kilogramme of other articles ;

4° Que, en cas de transport maritime effectué par deux ou plusieurs administrations, les frais du parcours total ne peuvent dépasser 15 francs par kilogramme de lettres ou cartes postales et 1 franc par kilogramme d'autres objets; ces frais, le cas échéant, sont répartis entre ces administrations au prorata des distances parcourues, sans préjudice aux arrangements différents entre les parties intéressées;

5° Que les prix spécifiés au présent article ne s'appliquent, ni aux transports au moyen de services dépendant d'administrations étrangères à l'Union, ni aux transports dans l'Union au moyen de services extraordinaires spécialement créés ou entretenus par une administration, soit dans l'intérêt, soit sur la demande d'une ou de plusieurs autres administrations. Les conditions de ces deux catégories de transports sont réglées de gré à gré entre les administrations intéressées.

Les frais de transit sont à la charge de l'administration du pays d'origine.

Le décompte général de ces frais a lieu sur la base de relevés établis tous les deux ans, pendant un mois à déterminer dans le règlement d'exécution prévu par l'article 14 ci-après.

Sont exempts de tous frais de transit territorial ou maritime, la correspondance des administrations postales entre elles, les objets réexpédiés ou mal dirigés, les rebuts, les avis de réception, les mandats de poste ou avis d'émission de mandats, et tous autres documents relatifs au service postal.

ARTICLE 5.

Les taxes pour le transport des envois postaux dans toute l'étendue de l'Union, y compris leur remise au domicile des destinataires dans les pays de l'Union où le service de

4th. That in the case of sea-conveyance effected by two or more Administrations, the expenses of the entire transportation cannot exceed 15 francs per kilogramme of letters or post-cards, and 1 franc per kilogramme of other articles. These expenses are in such case shared between the Administrations *pro rata* for the distances traversed, without prejudice to other arrangements between the parties interested;

5th. That the rates specified in the present article do not apply either to conveyance by means of services depending upon Administrations foreign to the Union, or to conveyance within the Union by means of extraordinary services specially established or maintained by one Administration in the interest or at the request of one or several other Administrations. The conditions of these two categories of conveyance are regulated by mutual agreement between the Administrations interested.

The expenses of transit are borne by the Administration of the country of origin.

The general settlement of these expenses takes place on the basis of statements prepared every two years, during a month to be determined on in the Regulation of Execution referred to in Article 14 hereafter.

The correspondence of the Postal Administrations with each other, articles reforwarded or missent, undeliverable articles, acknowledgments of delivery, post-office money-orders or advices of the issue of orders, and all other documents relative to the postal service, are exempt from all transit charges, whether territorial or maritime.

ARTICLE 5.

The rates of postage for the conveyance of postal articles throughout the entire extent of the Union, including their delivery at the residence of the addressees in the coun-

distribution est ou sera organisé, sont fixées comme suit :

1° Pour les lettres, à 25 centimes en cas d'affranchissement, et au double dans le cas contraire, par chaque lettre et par chaque poids de 15 grammes ou fraction de 15 grammes ;

2° Pour les cartes postales, à 10 centimes par carte ;

3° Pour les imprimés de toute nature, les papiers d'affaires et les échantillons de marchandises, à 5 centimes par chaque objet ou paquet portant une adresse particulière et par chaque poids de 50 grammes ou fraction de 50 grammes, pourvu que cet objet ou paquet ne contienne aucune lettre ou note manuscrite ayant le caractère de correspondance actuelle et personnelle, et soit conditionné de manière à pouvoir être facilement vérifié.

La taxe des papiers d'affaires ne peut être inférieure à 25 centimes par envoi, et la taxe des échantillons ne peut être inférieure à 10 centimes par envoi.

Il peut être perçu, en sus des taxes et des minima fixés par les paragraphes précédents :

1° Pour tout envoi soumis à des frais de transit maritime de 15 francs par kilogramme de lettres ou cartes postales et de 1 franc par kilogramme d'autres objets, une surtaxe qui ne peut dépasser 25 centimes par port simple pour les lettres, 5 centimes par carte postale et 5 centimes par 50 grammes ou fraction de 50 grammes pour les autres objets. Par mesure de transition, il peut être perçu une surtaxe jusqu'à concurrence de 10 centimes par port simple pour les lettres soumises à des frais de transit maritime de 5 francs par kilogramme.

2° Pour tout objet transporté par des services dépendant d'administrations étrangères à l'Union ou par des services extraordinaires dans l'Union, donnant lieu à des frais

tries of the Union where a delivery service is or shall be organized, are fixed as follows :

1st. For letters, 25 centimes in case of prepayment, and double that amount in the contrary case, for each letter and for every weight of 15 grammes or fraction of 15 grammes ;

2d. For post-cards, 10 centimes per card ;

3d. For printed matter of every kind, commercial papers, and samples of merchandise, 5 centimes for each article or packet bearing a particular address and for every weight of 50 grammes or fraction of 50 grammes, provided that such article or packet does not contain any letter or manuscript note having the character of an actual and personal correspondence, and that it be made up in such a manner as to admit of its being easily examined.

The charge on commercial papers cannot be less than 25 centimes per packet, and the charge on samples cannot be less than 10 centimes per packet.

In addition to the rates and minima fixed by the preceding paragraphs, there may be levied ;

1st. For every article subjected to the sea transit rates of 15 francs per kilogramme of letters or post-cards and 1 franc per kilogramme of other articles, an additional charge, which may not exceed 25 centimes per single rate for letters, 5 centimes per post-card, and 5 centimes per 50 grammes or fraction of 50 grammes for other articles. As a temporary arrangement, there may be levied an additional charge up to 10 centimes per single rate for the letters subjected to the transit rate of 5 francs per kilogramme.

2d. For every article conveyed by services maintained by Administrations foreign to the Union, or conveyed by extraordinary services in the Union giving rise to special

spéciaux, une surtaxe en rapport avec ces frais.

En cas d'insuffisance d'affranchissement, les objets de correspondance de toute nature sont passibles, à la charge des destinataires, d'une taxe double du montant de l'insuffisance.

Il n'est pas donné cours :

1° Aux objets, autres que les lettres, qui ne sont pas affranchis au moins partiellement ou ne remplissent pas les conditions requises ci-dessus pour jouir de la modération de taxe ;

2° Aux envois de nature à salir ou détériorer les correspondances ;

3° Aux paquets d'échantillons de marchandises qui ont une valeur marchande, non plus qu'à ceux dont le poids dépasse 250 grammes, ou qui présentent des dimensions supérieures à 20 centimètres de longueur, 10 de largeur et 5 d'épaisseur.

4° Enfin, aux paquets de papiers d'affaires et d'imprimés de toute nature dont le poids dépasse 2 kilogrammes.

expenses, an additional charge in proportion to these expenses.

In case of insufficient prepayment, articles of correspondence of all kinds are liable to a charge equal to double the amount of the deficiency, to be paid by the addressees.

Circulation shall not be given—

1st. To articles other than letters which are not prepaid at least partly, or which do not fulfill the conditions required above in order to enjoy the reduced rate ;

2d. To articles of a nature likely to soil or injure the correspondence ;

3d. To packets of samples of merchandise which have a salable value, or which exceed 250 grammes in weight, or measure more than 20 centimeters in length, 10 in breadth, and 5 in depth.

4th. Lastly, to packets of commercial papers and printed matter of all kinds, the weight of which exceeds 2 kilogrammes.

ARTICLE 6.

Les objets désignés dans l'article 5 peuvent être expédiés sous recommandation.

Tout envoi recommandé est passible, à la charge de l'envoyeur :

1° Du prix d'affranchissement ordinaire de l'envoi, selon sa nature ;

2° D'un droit fixe de recommandation de 25 centimes au maximum dans les Etats européens, et de 50 centimes au maximum dans les autres pays, y compris la délivrance d'un bulletin de dépôt à l'expéditeur.

L'envoyeur d'un objet recommandé peut obtenir un avis de réception de cet objet, en payant d'avance un droit fixe de 25 centimes au maximum.

En cas de perte d'un envoi recommandé, et sauf le cas de force majeure, il est dû une indemnité de

ARTICLE 6.

The articles specified in Article 5 may be registered.

Every registered article is liable, at the charge of the sender—

1st. To the ordinary prepaid rate of postage upon the article, according to its nature ;

2d. To a fixed registration fee of 25 centimes at the maximum in the European States, and of 50 centimes at the maximum in the other countries, including the issue to the sender of a bulletin of posting.

The sender of a registered article may obtain an acknowledgment of delivery of such article by paying in advance a fixed fee of 25 centimes at the maximum.

In case of the loss of a registered article, and except in case of *force majeure*, there is to be paid an in-

50 francs à l'expéditeur, ou, sur la demande de celui-ci, au destinataire, par l'administration sur le territoire ou dans le service maritime de laquelle la perte a eu lieu, c'est-à-dire où la trace de l'objet a disparu.

Par mesure de transition, il est permis aux administrations des pays hors d'Europe, dont la législation est actuellement contraire au principe de la responsabilité, d'ajourner l'application de la clause qui précède jusqu'au jour où elles auront pu obtenir du pouvoir législatif l'autorisation d'y souscrire. Jusqu'à ce moment, les autres administrations de l'Union ne sont pas astreintes à payer une indemnité pour la perte, dans leurs services respectifs, d'envois recommandés à destination ou provenant desdits pays.

S'il est impossible de découvrir le service dans lequel la perte a eu lieu, l'indemnité est supportée, par moitié, par les deux offices correspondants.

Le paiement de cette indemnité est effectué dans le plus bref délai possible, et, au plus tard, dans le délai d'un an à partir du jour de la réclamation.

Toute réclamation d'indemnité est prescrite, si elle n'a pas été formulée dans le délai d'un an à partir de la remise à la poste de l'objet recommandé.

ARTICLE 7.

Ceux des pays de l'Union qui n'ont pas le franc pour unité monétaire fixent leurs taxes à l'équivalent, dans leur monnaie respective, des taux déterminés par les articles 5 et 6 précédents. Ces pays ont la faculté d'arrondir les fractions conformément au tableau inséré au Règlement d'exécution mentionné à l'article 14 de la présente Convention.

ARTICLE 8.

L'affranchissement de tout envoi quelconque ne peut être opéré qu'au

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demnity of 50 francs to the sender, or, at his request, to the addressee, by the Administration upon whose territory or in whose maritime service the loss has occurred; that is to say, where the trace of the article has ceased.

As a temporary measure, the Administrations of the countries beyond Europe, whose legislation is at present opposed to the principle of responsibility, are permitted to postpone the application of the preceding clause until the time when they shall have obtained from the legislative power authority to subscribe to it. Up to that time, the other Administrations of the Union are not bound to pay an indemnity for the loss, in their respective services, of registered articles addressed to or originating in the said countries.

If it is impossible to discover the service in which the loss has occurred, the indemnity is borne in equal proportions between the two corresponding offices.

Payment of this indemnity is made with the least possible delay, and, at the latest, within a year dating from the day of application.

Every claim for an indemnity is excluded if it has not been made within one year from the date on which the registered article was posted.

ARTICLE 7.

Those countries of the Union which have not the franc for their monetary unit fix their postages at the equivalent in their respective currencies of the rates determined by Articles 5 and 6 preceding. Such countries have the option of rounding off the fractions in conformity with the table inserted in the Regulation of Execution mentioned in Article 14 of the present Convention.

ARTICLE 8.

Prepayment of postage on every description of article can be effected

moyen de timbres-poste valables dans le pays d'origine pour la correspondance des particuliers.

Les correspondances officielles relatives au service des postes et échangées entre les administrations postales sont seules exemptées de cette obligation et admises à la franchise.

only by means of postage-stamps valid in the country of origin for the correspondence of private individuals.

Official correspondence relative to the postal service, and exchanged between the Postal Administrations, is alone exempt from this obligation and admitted free.

ARTICLE 9.

Chaque administration garde en entier les sommes qu'elle a perçues en exécution des articles 5, 6, 7 et 8 précédents. En conséquence, il n'y a pas lieu, de ce chef, à un décompte entre les diverses administrations de l'Union.

Les lettres et autres envois postaux ne peuvent, dans le pays d'origine, comme dans celui de destination, être frappés, à la charge des expéditeurs ou des destinataires, d'aucune taxe ni d'aucun droit postal autres que ceux prévus par les articles susmentionnés.

ARTICLE 9.

Each Administration keeps the whole of the sums which it has collected in execution of the foregoing Articles 5, 6, 7, and 8. Consequently, there is no necessity on this head for any accounts between the several Administrations of the Union.

Neither the senders nor the addressees of letters and other postal articles are called upon to pay, either in the country of origin or in that of destination, any postage or any postal fee other than those contemplated by the Articles above-mentioned.

ARTICLE 10.

Il n'est perçu aucun supplément de taxe pour la réexpédition d'envois postaux dans l'intérieur de l'Union.

ARTICLE 10.

No additional charge is levied for the reforwarding of postal matter within the interior of the Union.

ARTICLE 11.

Il est interdit au public d'expédier, par la voie de la poste :

1° Des lettres ou paquets contenant soit des matières d'or ou d'argent, soit des pièces de monnaie, soit des bijoux ou des objets précieux ;

2° Des envois quelconques contenant des objets passibles de droits de douane.

Dans le cas où un envoi tombant sous l'une de ces prohibitions est livré par une administration de l'Union à une autre administration de l'Union, celle-ci procède de la manière et dans les formes prévues par sa législation ou par ses règlements intérieurs.

ARTICLE 11.

It is forbidden to the public to send by mail :

1st. Letters or packets containing gold or silver substances, pieces of money, jewelry, or precious articles ;

2d. Any packets whatever containing articles liable to customs duty.

In case a packet falling under one of these prohibitions is delivered by one Administration of the Union to another Administration of the Union, the latter proceeds according to the manner and forms prescribed by its legislation or by its interior regulations.

Est d'ailleurs réservé le droit du Gouvernement de tout pays de l'Union de ne pas effectuer, sur son territoire, le transport ou la distribution, tant des objets jouissant de la modération de taxe, à l'égard desquels il n'a pas été satisfait aux lois, ordonnances ou décrets qui règlent les conditions de leur publication ou de leur circulation dans ce pays, que des correspondances de toute nature qui portent ostensiblement des inscriptions interdites par les dispositions légales ou réglementaires en vigueur dans le même pays.

There is, moreover, reserved to the Government of every country or the Union the right to refuse to convey over its territory, or to deliver, as well articles liable to the reduced rate, in regard to which the laws, ordinances, or decrees which regulate the conditions of their publication or of their circulation in that country have not been complied with, as correspondence of every kind which evidently bears inscriptions forbidden by the legal enactments or regulations in force in the same country.

ARTICLE 12.

Les offices de l'Union qui ont des relations avec des pays situés en dehors de l'Union admettent tous les autres offices à profiter de ces relations pour l'échange des correspondances avec lesdits pays.

Les correspondances échangées à découvert entre un pays de l'Union et un pays étranger à celle-ci, par l'intermédiaire d'un autre pays de l'Union, sont traitées, pour ce qui concerne le transport en dehors des limites de l'Union, d'après les conventions, arrangements ou dispositions particulières régissant les rapports de poste entre ce dernier pays et le pays étranger à l'Union.

Les taxes applicables aux correspondances dont il s'agit se composent de deux éléments distincts, savoir :

1^o La taxe de l'Union fixée par les articles 5, 6 et 7 de la présente Convention;

2^o Une taxe afférente au transport en dehors des limites de l'Union.

La première de ces taxes est attribuée :

a. Pour les correspondances originaires de l'Union à destination des pays étrangers, à l'office expéditeur, en cas d'affranchissement, et à l'office d'échange, en cas de non-affranchissement;

b. Pour les correspondances provenant des pays étrangers à destina-

ARTICLE 12.

The offices of the Union which have relations with countries beyond the Union admit all the other offices to take advantage of such relations for the exchange of correspondence with the said countries.

The correspondence exchanged in open mails between a country of the Union and a country foreign to the Union, through the intermediary of another country of the Union, is treated, as regards the conveyance beyond the limits of the Union, in conformity to the conventions, arrangements, or special provisions governing the postal relations between the latter country and the country foreign to the Union.

The rates chargeable on the correspondence in question consist of two distinct elements, viz :

1st. The Union rate fixed by Articles 5, 6, and 7 of the present Convention.

2d. A rate for the conveyance beyond the limits of the Union.

The first of these rates is assigned—

a. For correspondence originating in the Union and addressed to foreign countries, to the dispatching office in case of prepayment, and to the office of exchange in case of non-prepayment.

b. For correspondence originating in foreign countries and addressed

tion de l'Union, à l'office d'échange, en cas d'affranchissement, et à l'office destinataire, en cas de non-affranchissement.

La seconde de ces taxes est bonifiée à l'office d'échange, dans tous les cas.

A l'égard des frais de transit dans l'Union, les correspondances originaires ou à destination d'un pays étranger sont assimilées à celles de ou pour le pays de l'Union qui entretient les relations avec le pays étranger à l'Union, à moins que ces relations n'impliquent l'affranchissement obligatoire et partiel, auquel cas ledit pays de l'Union a droit à la bonification des prix de transit territorial fixés par l'article 4 précédent.

Le décompte général des taxes afférentes au transport en dehors des limites de l'Union a lieu sur la base de relevés, qui sont établis en même temps que les relevés dressés en vertu de l'article 4 précédent, pour l'évaluation des frais de transit dans l'Union.

Quant aux correspondances échangées en *dépêches closes* entre un pays de l'Union et un pays étranger à celle-ci, par l'intermédiaire d'un autre pays de l'Union, le transit en est soumis, savoir :

Dans le ressort de l'Union, aux prix déterminés par l'article 4 de la présente Convention.

En dehors des limites de l'Union, aux conditions résultant des arrangements particuliers conclus ou à conclure à cet effet entre les administrations intéressées.

ARTICLE 13.

Le service des lettres avec valeur déclarée et celui des mandats de poste font l'objet d'arrangements particuliers entre les divers pays ou groupes de pays de l'Union.

ARTICLE 14.

Les administrations postales des

to the Union, to the office of exchange in case of prepayment, and to the office of destination in case of non-prepayment.

The second of these rates is, in every case, assigned to the office of exchange.

With regard to the expenses of transit within the Union, the correspondence originating in or addressed to a foreign country is assimilated to that from or for the country of the Union which maintains relations with the country foreign to the Union, unless such relations imply obligatory and partial prepayment, in which case the said Union country has the right to the territorial transit rates fixed by Article 4 preceding.

The general settlement of the rates chargeable for the conveyance beyond Union limits takes place upon the basis of statements which are prepared at the same time as the statements drawn up by virtue of Article 4 preceding for the calculation of the expenses of transit within the Union.

As regards the correspondence exchanged in *closed mails* between a country of the Union and a country foreign to the Union, through the intermediary of another country of the Union, the transit thereof is subject as follows :

Within the limits of the Union, to the rates fixed by Article 4 of the present Convention.

Beyond the limits of the Union, to the conditions arising from special arrangements concluded or to be concluded for that purpose between the Administrations interested.

ARTICLE 13.

The exchange of letters of declared value and that of postal money-orders form the subject of special arrangements between the various countries or groups of countries of the Union.

ARTICLE 14.

The Postal Administrations of

divers pays qui composent l'Union sont compétentes pour arrêter, d'un commun accord, dans un Règlement d'exécution, toutes les mesures d'ordre et de détail qui sont jugées nécessaires.

Les différentes administrations peuvent, en outre, prendre entre elles les arrangements nécessaires au sujet des questions qui ne concernent pas l'ensemble de l'Union, pourvu que ces arrangements ne dérogent pas à la présente Convention.

Il est toutefois permis aux administrations intéressées de s'entendre mutuellement pour l'adoption de taxes réduites dans un rayon de 30 kilomètres, pour les conditions de la remise des lettres par exprès, ainsi que pour l'échange des cartes postales avec réponse payée. Dans ce dernier cas, le renvoi des cartes-réponse au pays d'origine jouit de l'exemption de frais de transit stipulée par le dernier alinéa de l'article 4 de la présente Convention.

ARTICLE 15.

La présente Convention ne porte point altération à la législation postale de chaque pays, dans tout ce qui n'est pas prévu par les stipulations contenues dans cette Convention.

Elle ne restreint pas le droit des parties contractantes de maintenir et de conclure des traités, ainsi que de maintenir et d'établir des Unions plus restreintes, en vue de l'amélioration des relations postales.

ARTICLE 16.

Est maintenue l'institution, sous le nom de *Bureau international de l'Union postale universelle*, d'un office central qui fonctionne sous la haute surveillance de l'Administration des postes suisses, et dont les frais sont supportés par toutes les administrations de l'Union.

Ce Bureau demeure chargé de réunir, de coordonner, de publier

the various countries composing the Union are competent to establish by mutual agreement, in a Regulation of Execution, all the measures of order and detail which are judged necessary.

The several Administrations may, moreover, make among themselves the necessary arrangements on the subject of questions which do not concern the Union generally, provided that these arrangements are not contrary to the present Convention.

The Administrations interested are, however, permitted to come to mutual arrangements for the adoption of lower rates of postage, within a radius of 30 kilometers, for the conditions of the delivery of letters by express, as well as for the exchange of post-cards with paid answer. In this latter case, the answer-cards, when sent back to the country of origin, are exempt from the transit charges stipulated by the last paragraph of Article 4 of the present Convention.

ARTICLE 15.

The present Convention involves no alteration in the postal legislation of any country as regards anything which is not provided for by the stipulations contained in this Convention.

It does not restrict the right of the contracting parties to maintain and to conclude treaties, as well as to maintain and establish more restricted Unions, with a view to the improvement of postal relations.

ARTICLE 16.

There is maintained, under the name of the *International Bureau of the Universal Postal Union*, a central office, which is conducted under the superintendence of the Swiss Postal Administration, and the expenses of which are borne by all the Administrations of the Union.

This office continues to be charged with the duty of collecting, collat-

et de distribuer les renseignements de toute nature qui intéressent le service international des postes; d'émettre, à la demande des parties en cause, un avis sur les questions litigieuses; d'instruire les demandes en modification des actes du Congrès; de notifier les changements adoptés, et, en général, de procéder aux études et aux travaux dont il serait saisi dans l'intérêt de l'Union postale.

ing, publishing, and distributing information of every kind which concerns the international postal service; of giving, at the request of the parties concerned, an opinion upon questions in dispute; of making known proposals for modifying the acts of the Congress; of giving notice of the changes adopted, and, in general, of undertaking examinations and labors devolving upon it in the interest of the Postal Union.

ARTICLE 17.

En cas de dissentiment entre deux ou plusieurs membres de l'Union relativement à l'interprétation de la présente Convention, la question en litige est réglée par jugement arbitral. A cet effet, chacune des administrations en cause choisit un autre membre de l'Union qui n'est pas directement intéressé dans l'affaire.

La décision des arbitres est donnée à la majorité absolue des voix.

En cas de partage des voix, les arbitres choisissent, pour trancher le différend, une autre administration également désintéressée dans le litige.

ARTICLE 17.

In case of disagreement between two or more members of the Union as to the interpretation of the present Convention, the question in dispute is decided by arbitration. To that end, each of the Administrations concerned chooses another member of the Union not directly interested in the matter.

The decision of the arbitrators is given by the absolute majority of votes.

In case of an equality of votes, the arbitrators choose, in order to settle the difference, another Administration equally disinterested in the disputed question.

ARTICLE 18.

Les pays qui n'ont point pris part à la présente Convention sont admis à y adhérer sur leur demande.

Cette adhésion est notifiée, par la voie diplomatique, au Gouvernement de la Confédération suisse, et, par ce Gouvernement, à tous les pays de l'Union.

Elle emporte, de plein droit, accession à toutes les clauses et admission à tous les avantages stipulés par la présente Convention.

Il appartient au Gouvernement de la Confédération suisse de déterminer, d'un commun accord avec le Gouvernement du pays intéressé, la part contributive de l'administration de ce dernier pays dans les

ARTICLE 18.

Countries which have not taken part in the present convention are admitted to adhere thereto upon their demand.

Notice is given of this adhesion, through the diplomatic channel, to the Government of the Swiss Confederation, and by that Government to all the countries of the Union.

It implies, as a right, accession to all the clauses and admission to all the advantages stipulated by the present Convention.

It devolves upon the Government of the Swiss Confederation to determine, by mutual agreement with the Government of the country interested, the share to be contributed by the Administration of this latter

srais du Bureau international, et, s'il y a lieu, les taxes à percevoir par cette administration en conformité de l'article 7 précédent.

country toward the expenses of the International Bureau, and, if necessary, the rates to be levied by that Administration in conformity with Article 7 preceding.

ARTICLE 19.

Des congrès de plénipotentiaires des pays contractants ou de simples conférences administratives, selon l'importance des questions à résoudre, sont réunis, lorsque la demande en est faite ou approuvée par les deux tiers, au moins, des Gouvernements ou administrations, suivant le cas.

Toutefois, un congrès doit avoir lieu au moins tous les cinq ans.

Chaque pays peut se faire représenter, soit par un ou plusieurs délégués, soit par la délégation d'un autre pays. Mais il est entendu que le délégué ou les délégués d'un pays ne peuvent être chargés que de la représentation de deux pays, y compris celui qu'ils représentent.

Dans les délibérations chaque pays dispose d'une seule voix.

Chaque congrès fixe le lieu de la réunion du prochain congrès.

Pour les conférences, les administrations fixent les lieux de réunion sur la proposition du Bureau international.

ARTICLE 20.

Dans l'intervalle qui s'écoule entre les réunions, tout administration des postes d'un pays de l'Union a le droit d'adresser aux autres administrations participantes, par l'intermédiaire du Bureau international, des propositions concernant le régime de l'Union. Mais, pour devenir exécutoires ces propositions doivent réunir, savoir:

1° L'unanimité des suffrages, s'il s'agit de la modification des dispositions articles 2, 3, 4, 5, 6 et 9 précédents;

2° Les deux tiers des suffrages, s'il s'agit de la modification des

ARTICLE 19.

Congresses of plenipotentiaries of the contracting countries, or simple Administrative Conferences, according to the importance of the questions to be solved, are held when a demand for them is made or approved by two-thirds, at least, of the Governments or Administrations, as the case may be.

Nevertheless, a Congress must be held at least once every five years.

Each country may be represented either by one or several delegates, or by the delegation of another country. But it is understood that the delegate or delegates of one country can be charged with the representation of two countries only, including the country which they represent.

In the deliberations each country has one vote only.

Each Congress fixes the place of meeting for the following Congress.

For Conferences, the Administrations fix the places of meeting upon proposal of the International Bureau.

ARTICLE 20.

In the interval which elapses between the meetings, any Postal Administration of a country of the Union has the right to address to the other Administrations belonging to it, through the intermediary of the International Bureau, proposals concerning the regimen of the Union. But to become executive these propositions must obtain, as follows:

1st. Unanimity of votes, if they involve a modification of the stipulations of Articles 2, 3, 4, 5, 6, and 9 preceding.

2d. Two-thirds of the votes, if they involve a modification of the

dispositions de la Convention autres que celles des articles 2, 3, 4, 5, 6 et 9;

3^o La simple majorité absolue, s'il s'agit de l'interprétation des dispositions de la Convention, hors le cas de litige prévu à l'article 17 précédent.

Les résolutions valables sont consacrées, dans les deux premiers cas, par une déclaration diplomatique, que le Gouvernement de la Confédération suisse est chargé d'établir et de transmettre à tous les Gouvernements des pays contractants, et, dans le troisième cas, par une simple notification du Bureau international à toutes les administrations de l'Union.

ARTICLE 21.

Sont considérés comme formant, pour l'application des articles 16, 19 et 20 précédents, un seul pays ou une seule administration, suivant le cas:

- 1^o L'empire de l'Inde britannique;
- 2^o Le dominion du Canada;
- 3^o L'ensemble des colonies danoises;
- 4^o L'ensemble des colonies espagnoles;
- 5^o L'ensemble des colonies françaises;
- 6^o L'ensemble des colonies néerlandaises;
- 7^o L'ensemble des colonies portugaises.

ARTICLE 22.

La présente Convention sera mise à exécution le 1^{er} avril 1879, et demeurera en vigueur pendant un temps indéterminé; mais chaque partie contractante a le droit de se retirer de l'Union, moyennant un avertissement donné une année à l'avance par son Gouvernement au Gouvernement de la Confédération suisse.

stipulations of the Convention other than those of Articles 2, 3, 4, 5, 6, and 9.

3d. A simple absolute majority, if they involve the interpretation of the stipulations of the Convention, except in the case of dispute contemplated in Article 17 preceding.

The binding decisions are sanctioned, in the first two cases, by a diplomatic declaration, which the Government of the Swiss Confederation is charged to prepare and transmit to all the Governments of the contracting countries, and, in the third case, by a simple notification from the International Bureau to all the Administrations of the Union.

ARTICLE 21.

The following are considered as forming, for the application of Articles 16, 19, and 20 preceding, a single country, or a single Administration, as the case may be:

- 1st. The Empire of British India;
- 2d. The Dominion of Canada;
- 3d. The whole of the Danish Colonies;
- 4th. The whole of the Spanish Colonies;
- 5th. The whole of the French Colonies;
- 6th. The whole of the Netherland Colonies;
- 7th. The whole of the Portuguese Colonies.

ARTICLE 22.

The present Convention shall be put into execution on the 1st of April, 1879, and shall remain in force during an indefinite period: but each contracting party has the right to withdraw from the Union by means of a notice given, one year in advance, by its Government to the Government of the Swiss Confederation.

ARTICLE 23.

Sont abrogées, à partir du jour de la mise à exécution de la présente Convention, toutes les dispositions des traités, conventions, arrangements ou autres actes conclus antérieurement entre les divers pays ou administrations, pour autant que ces dispositions ne seraient pas conciliables avec les termes de la présente Convention, et sans préjudice des droits réservés par l'article 15 ci-dessus.

La présente Convention sera ratifiée aussitôt que faire se pourra. Les actes de ratification seront échangés à Paris.

En foi de quoi, les plénipotentiaires des pays ci-dessus énumérés ont signé la présente Convention à Paris, le premier juin, mil huit cent soixante et dix-huit.

ARTICLE 23.

After the date on which the present Convention takes effect, all the stipulations of the treaties, conventions, arrangements, or other acts previously concluded between the various countries or administrations, in so far as those stipulations are not in accordance with the terms of the present Convention, are abrogated, without prejudice to the rights reserved by Article 15 above.

The present Convention shall be ratified as soon as possible. The acts of ratification shall be exchanged at Paris.

In faith of which, the plenipotentiaries of the countries above enumerated have signed the present Convention at Paris, the first of June, one thousand eight hundred and seventy-eight.

Pour les États-Unis de l'Amérique du Nord	{ JAS. N. TYNER. JOSEPH H. BLACKFAN. DR. STEPHAN.
Pour l'Allemagne.....	{ GÜNTHER. SACHSE.
Pour la République Argentine.....	CARLOS CALVO.
Pour l'Autriche	DEWÉZ.
Pour la Hongrie.....	GERVAY.
Pour la Belgique	{ J. VINCENT. F. GIFE.
Pour le Brésil.....	VICOMTE D'ITAJUBA.
Pour le Danemark et les Colonies danoises	{ SCHOU.
Pour l'Égypte.....	A. CAILLARD.
Pour l'Espagne et les Colonies espagnoles	{ G. CRUZADA VILLAAMIL. EMILIO C. DE NAVASQUES.
Pour la France.....	{ LEON SAY. AD. COCHERY. A. BESNIER.
Pour les Colonies françaises	E. ROY.
Pour la Grande-Bretagne et diverses Colonies anglaises	{ F. O. ADAMS. WM. JAS. PAGE. A. MACLEAN.
Pour l'Inde britannique	FRED. R. HOGG.
Pour le Canada	{ F. O. ADAMS. WM. JAS. PAGE. A. MACLEAN.
Pour la Grèce	{ N. P. DELYANNI. A. MANSOLAS.
Pour l'Italie	G. B. TANTESIO.

Pour le Japon.....	{ NAONOBOU SAMESHIMA.
Pour le Luxembourg.....	{ SAML. M. BRYAN.
Pour le Mexique.....	{ V. DE ROEBE.
Pour le Monténégro	{ G. BARREDA.
Pour la Norvège.....	{ DEWÉZ.
Pour les Pays-Bas et les Colonies néer- landaises	{ CHR. HEFTY.
	{ HOFSTEDE.
Pour le Pérou.....	{ BARON SWEERTS DE LANDAS-
Pour la Perse	{ WYBORGH.
Pour le Portugal et les Colonies portu- gaises	{ JUAN M. DE GOYENECHÉ.
Pour la Roumanie	{ GUELHERMENO AUGUSTO DE
Pour la Russie	{ BARROS.
	{ C. F. ROBESCO.
Pour le Salvador	{ BARON VELHO.
Pour la Serbie	{ GEORGES POGGENPOHL.
Pour la Suède.....	{ J. M. TORRÉS CAICEDO.
	{ MLADEN F. RADOYCOVITCH.
Pour la Suisse	{ WM. ROOS.
	{ DR. KERN.
Pour la Turquie.....	{ ED. HÖHN.
	{ B. COUYOUMGIAN.

Having examined and considered the provisions of the foregoing Convention, signed at Paris on the 1st of June, A. D. 1878, revising the Treaty constituting the General Postal Union which was concluded at Berne on the 9th of October, A. D. 1874, the same is by me, in virtue of the powers vested in the Postmaster-General by law, hereby ratified and approved, by and with the advice and consent of the President of the United States.

In witness whereof I have caused the seal of the Post-Office Department of the United States to be hereto affixed, with my signature, this 13th day of August, 1878.

[SEAL.]

D. M. KEY,
Postmaster-General.

I hereby approve the above-mentioned Convention, and in testimony thereof I have caused the seal of the United States to be affixed hereto.

[SEAL.]

R. B. HAYES.

By the President:
F. W. SEWARD,
Acting Secretary of State.

WASHINGTON, August 13, 1878.

UNIVERSAL POSTAL UNION—CONVENTION OF PARIS.

FINAL PROTOCOL.

Les soussignés, plénipotentiaires des Gouvernements des pays qui ont signé aujourd'hui la Convention de Paris, sont convenus de ce qui suit:

I. La Perse, qui fait partie de l'Union, n'étant pas représentée, sera admise néanmoins à signer ultérieurement la Convention, moyennant qu'elle consacre son adhésion par un acte diplomatique avec le Gouvernement suisse, avant le 1^{er} avril 1879.

II. Les pays étrangers à l'Union, qui ont ajourné leur adhésion ou qui ne sont pas encore prononcés, entreront dans l'Union en remplissant les conditions prévues par l'article 18 de la Convention.

III. Dans le cas où l'une ou l'autre des parties contractantes ne ratifierait pas la Convention, cette Convention n'en sera pas moins valable pour les parties.

IV. Les diverses Colonies anglaises, autres que le Canada et l'Inde britannique, qui prennent part à la Convention sont: Ceylan, Straits Settlements, Labuan, Hong Kong, Maurice et dépendances, les Bermudes, la Guyane anglaise, la Jamaïque et la Trinité.

En foi de quoi les plénipotentiaires ci-dessous ont dressé le présent protocole final, qui aura la même force et la même valeur que si les dispositions qu'il contient étaient insérées dans la Convention elle-même, et ils l'ont signé en un exemplaire qui sera déposé aux archives du gouvernement français et dont une copie sera remise à chaque partie.

Paris, le 1^{er} juin 1878.

Pour l'Allemagne.....

The undersigned, plenipotentiaries of the Governments of the countries which have this day signed the Convention of Paris, have agreed as follows:

I. Persia, which forms part or the Union, being unrepresented, will nevertheless be allowed to sign the Convention hereafter, provided that country confirms its adhesion by a diplomatic act with the Swiss Government before the 1st of April, 1879.

II. The countries foreign to the Union, which have deferred their adhesion or which have not yet announced their intentions, shall enter the Union on fulfilling the conditions specified in Article 18 of the Convention.

III. In case one or other of the contracting parties should not ratify the Convention, this Convention shall nevertheless be binding on the parties to it.

IV. The various British colonies, other than Canada and British India, which are parties in the Convention, are Ceylon, the Straits Settlements, Labuan, Hong-Kong, Mauritius and dependencies, Bermuda, British Guiana, Jamaica, and Trinidad.

In faith of which the undermentioned plenipotentiaries have drawn up the present final protocol, which shall have the same force and the same value as if the stipulations which it contains were inserted in the Convention itself, and they have signed it in one single instrument, which shall be deposited in the archives of the French Government, and a copy of which shall be delivered to each party.

Paris, June 1st, 1878.

{ DR. STEPHAN.
GÜNTHER.
SACHSE.

Pour la République Argentine.....	CARLOS CALVO.
Pour l'Autriche.....	DEWÉZ.
Pour la Hongrie.....	GERVAY.
Pour la Belgique.....	{ J. VINCENT.
	{ F. GIFE.
Pour le Brésil.....	VICOMTE D'ITAJUBA.
Pour le Danemark et les Colonies danoises.....	SCHOU.
Pour l'Égypte.....	A. CAILLARD.
Pour l'Espagne et les Colonies espa- gnoles.....	{ G. CRUZADA VILLAAMIL.
	{ EMILIO C. DE NAVASQUES.
Pour les États-Unis de l'Amérique du Nord.....	{ JAS. N. TYNER.
	{ JOSEPH H. BLACKFAN.
	{ LEON SAY.
Pour la France.....	{ AD. COCHERY.
	{ A. BESNIER.
Pour les Colonies françaises.....	E. ROY.
Pour la Grande-Bretagne et diverses Colonies anglaises.....	{ F. O. ADAMS.
	{ WM. JAS. PAGE.
	{ A. MACLEAN.
Pour l'Inde britannique.....	FRED. R. HOGG.
	{ F. O. ADAMS.
Pour le Canada.....	{ WM. JAS. PAGE.
	{ A. MACLEAN.
	{ N. P. DELYANNI.
Pour la Grèce.....	{ A. MANSOLAS.
	{ G. B. TANTESIO.
Pour l'Italie.....	NAONOBOU SAMESHIMA.
Pour le Japon.....	{ SAML. M. BRYAN.
	{ V. DE ROBE.
Pour le Luxembourg.....	G. BARREDA.
Pour le Mexique.....	DEWÉZ.
Pour le Monténégro.....	CHR. HEFTY.
Pour le Norvège.....	HOFSTEDE.
Pour les Pays-Bas et les Colonies néer- landaises.....	{ BARON SWEERTS DE LANDAS- WYBORGH.
Pour le Pérou.....	JUAN M. DE GOYENECHÉ.
Pour le Portugal et les Colonies portu- gaises.....	{ GUELHERMENO AUGUSTO DE BARROS.
Pour la Roumanie.....	C. F. ROBESCO.
	{ BARON VELHO.
Pour la Russie.....	{ GEORGES POGGENPOHL.
	{ J. M. TORRÉS-CAICEDO.
Pour le Salvador.....	MLADEN F. RADOYCOVITCH.
Pour la Serbie.....	WM. ROOS.
Pour la Suède.....	{ DR. KERN.
	{ ED. HÖHN.
Pour la Suisse.....	B. COUYOUMGIAN.
Pour la Turquie.....	

Having examined and considered the provisions of the forgoing final protocol, signed at Paris on the 1st of June, A. D. 1878, relative to the Convention of Paris, signed the same day, the same is by me, in virtue of the powers vested in the Postmaster-General by law, hereby ratified and approved, by and with the advice and consent of the President of the United States.

In witness whereof I have caused the seal of the Post-Office Depart-

ment of the United States to be hereto affixed, with my signature, this 13th day of August, 1878.

[SEAL.]

D. M. KEY,
Postmaster-General.

I hereby approve the above-mentioned protocol, and in testimony thereof I have caused the seal of the United States to be affixed.

[SEAL.]

R. B. HAYES.

By the President:

F. W. SEWARD,

Acting Secretary of State.

WASHINGTON, August 13, 1878.

UNIVERSAL POSTAL UNION.

REGULATIONS OF DETAIL AND ORDER

FOR THE

**EXECUTION OF THE CONVENTION CONCLUDED
AT PARIS JUNE 1, 1878.**

These regulations, as signed, were in the French language only. The English translation has been added in Washington.

UNIVERSAL POSTAL UNION.

RÈGLEMENT DE DÉTAIL ET
D'ORDRE POUR L'EXÉCUTION DE
LA CONVENTION CONCLUE EN-
TRE L'ALLEMAGNE, LA RÉPU-
BLIQUE ARGENTINE, L'AUTRI-
CHE-HONGRIE, LA BELGIQUE, LE
BRÉSIL, LE DANEMARK ET LES
COLONIES DANOISES, L'ÉGYPTE,
L'ESPAGNE ET LES COLONIES
ESPAGNOLES, LES ÉTATS-UNIS
DE L'AMÉRIQUE DU NORD, LA
FRANCE ET LES COLONIES FRAN-
ÇAISES, LA GRANDE-BRETAGNE
ET DIVERSES COLONIES ANGLAI-
SES, L'INDE BRITANNIQUE, LE
CANADA, LA GRÈCE, L'ITALIE,
LE JAPON, LE LUXEMBOURG, LE
MEXIQUE, LE MONTÉNÉGRRO, LA
NORVÈGE, LES PAYS-BAS ET LES
COLONIES NÉERLANDAISES, LE
PÉROU, LA PERSE, LE PORTU-
GAL ET LES COLONIES PORTU-
GAISES, LA ROUMANIE, LA RUS-
SIE, LA SERBIE, LE SALVADOR,
LA SUÈDE, LA SUISSE, ET LA
TURQUIE.

Les soussignés, vu l'article 14
de la Convention conclue à Paris,
le 1^{er} juin 1878, pour la révision du
pacte fondamental de l'Union gé-
nérale des Postes, ont, au nom de
leurs administrations respectives,
arrêté d'un commun accord les
mesures suivantes, pour assurer
l'exécution de ladite Convention.

I.

Direction des correspondances.

1. Chaque administration est obli-
gée d'expédier, par les voies les
plus rapides dont elle peut disposer
pour ses propres envois, les dépêches

Regulations of Detail and Order for
the execution of the Convention
concluded between Germany, the
Argentine Republic, Austria-
Hungary, Belgium, Brazil, Den-
mark and the Danish Colonies,
Egypt, Spain and the Spanish Col-
onies, the United States of North
America, France and the French
Colonies, Great Britain and cer-
tain British Colonies, British
India, Canada, Greece, Italy,
Japan, Luxemburg, Mexico, Mon-
tenegro, Norway, the Nether-
lands and the Netherland Colo-
nies, Peru, Persia, Portugal and
the Portuguese Colonies, Rou-
mania, Russia, Servia, Salvador,
Sweden, Switzerland, and Tur-
key.

The undersigned, in view of Arti-
cle 14 of the Convention concluded
at Paris, June 1st, 1878, for the re-
vision of the fundamental compact
of the General Postal Union, have,
in the name of their respective
Administrations, established, by
mutual agreement, the following
measures to insure the execution
of the said Convention :

I.

Direction of the Correspondence.

1. Each Administration is bound
to forward, by the most rapid routes
at its disposal for its own mails, the
closed mails and the correspondence

closes et les correspondances à découvert qui lui sont livrées par une autre administration.

2. Les administrations qui usent de la faculté de percevoir des taxes supplémentaires, en représentation des frais extraordinaires afférents à certaines voies, sont libres de ne pas diriger par ces voies, lorsqu'il existe d'autres moyens de communication, celles des correspondances insuffisamment affranchies pour lesquelles l'emploi desdites voies n'a pas été réclamé expressément par les envoyeurs

II.

Échange en dépêches closes.

1. L'échange des correspondances en dépêches closes, entre les administrations de l'Union, est réglé d'un commun accord et selon les nécessités du service entre les administrations en cause.

2. S'il s'agit d'un échange à faire par l'entremise d'un ou de plusieurs pays tiers, les administrations de ces pays doivent en être prévenues en temps opportun.

3. Il est, d'ailleurs, obligatoire, dans ce dernier cas, de former des dépêches closes, toutes les fois que le nombre des correspondances est de nature à entraver les opérations d'une administration intermédiaire, d'après la déclaration de cette administration.

4. En cas de changement dans un service d'échange en dépêches closes, établi entre deux administrations par l'entremise d'un ou de plusieurs pays tiers, l'administration qui a provoqué le changement en donne connaissance aux administrations des pays par l'entremise desquels cet échange s'effectue.

III.

Services extraordinaires.

Les services extraordinaires de l'Union, donnant lieu à des frais

in open mails which are delivered to it by another Administration.

2. The Administrations which avail themselves of the right to levy supplementary charges, as representing the extraordinary expenses attending certain routes, are at liberty not to forward by those routes when other means of communication exist, such of the insufficiently paid correspondence for which the employment of the said routes has not been expressly requested by the senders.

II.

Exchange in Closed Mails.

1. The exchange of the correspondence in closed mails between the Administrations of the Union is regulated by mutual agreement, and according to the needs of the service, between the Administrations concerned.

2. If an exchange is to be made through the intermediary of one or several third countries, the Administrations of those countries must be informed thereof in due time.

3. It is, moreover, obligatory in this latter case, to make up closed mails, whenever the amount of the correspondence is of a nature to impede the operations of an intermediary Administration, according to the statement of that Administration.

4. In case of alteration in a service of exchange in closed mails established between two Administrations through the intermediary of one or more third countries, the Administration which has called for the alteration gives notice thereof to the Administrations of the countries through whose intermediary the exchange is made.

III.

Extraordinary Services.

The extraordinary services of the Union giving rise to special ex-

spéciaux dont la fixation est réservée, par l'article 4 de la Convention, à des arrangements entre les administrations intéressées, sont exclusivement :

1° Ceux qui sont entretenus pour le transport territorial accéléré de la Malle dite *des Indes* ;

2° Celui que l'Administration des postes des États-Unis d'Amérique entretient sur son territoire pour le transport des dépêches closes entre l'Océan Atlantique et l'Océan Pacifique.

penses, the fixing of which is reserved by Article 4 of the Convention for arrangements between the Administrations interested, are exclusively—

1st. Those which are maintained for the accelerated territorial conveyance of the mail called Indian ;

2d. That which the Postal Administration of the United States of America maintains upon its territory for the conveyance of closed mails between the Atlantic Ocean and the Pacific Ocean.

IV.

Fixation des taxes.

1. En exécution de l'article 7 de la Convention, les administrations des pays de l'Union qui n'ont pas le franc pour unité monétaire perçoivent leurs taxes d'après les équivalents ci-dessous :

Pays.	25 centimes.	10 centimes.	5 centimes.
Allemagne	20 pfennig.	10 pfennig.	5 pfennig.
Argentine (République)	8 centavos.	4 centavos.	2 centavos.
Autriche-Hongrie	10 kreuzer.	5 kreuzer.	3 kreuzer.
Brazil	100 reis	50 reis	25 reis.
Danemark	20 öre	10 öre	5 öre.
Colonies danoises :			
Groënland	20 öre	10 öre	5 öre.
Antilles	5 cents	2 cents	1 cent.
Égypte	1 piastre	20 paras	10 paras.
États-Unis d'Amérique	5 cents	2 cents	1 cent.
Grande-Bretagne	2½ pence	1 penny	½ penny.
Inde britannique	2 annas	½ anna	¼ anna.
Colonies anglaises :			
Jamaïque			
Trinité			
Guyane Anglaise, Labuan, Maurice et dépendances, Bermudes	2½ pence	1 penny	½ penny.
Ceylan, Straits Settlements, Hong-Kong, Canada	5 cents	2 cents	1 cent.
Japon	5 sen	2 sen	1 sen.
Monténégro	10 soldi	5 soldi	3 soldi.
Norvège	20 öre	10 öre	5 öre.
Pays-Bas et colonies néerlandaises	12½ cents	5 cents	2½ cents.
Persie	5 shahis	2 shahis	1 shahi.

IV.

Fixing the Rates of Postage.

1. In execution of Article 7 of the Convention, the Administrations of the countries of the Union which have not the franc for monetary unit, levy their rates of postage according to the following equivalents :

Countries.	25 centimes.	10 centimes.	5 centimes.
Germany	20 pfennig.	10 pfennig.	5 pfennig.
Argentine Republic	8 centavos.	4 centavos.	2 centavos.
Austria-Hungary	10 kreuzer.	5 kreuzer.	3 kreuzer.
Brazil	100 reis	50 reis	25 reis.
Danmark	20 öre	10 öre	5 öre.
Danish colonies :			
Greenland	20 öre	10 öre	5 öre.
West Indies	5 cents	2 cents	1 cent.
Egypt	1 piastre	20 paras	10 paras.
United States of America	5 cents	2 cents	1 cent.
Great Britain	2½ pence	1 penny	½ penny.
British India	2 annas	½ anna	¼ anna.
British colonies :			
Jamaica, Trinidad, British Guiana, Labuan, Mauritius and dependencies, Bermudas	2½ pence	1 penny	½ penny.
Ceylon, Straits Settlements, Hong-Kong, Canada	5 cents	2 cents	1 cent.
Japan	5 sen	2 sen	1 sen.
Montenegro	10 soldi	5 soldi	3 soldi.
Norway	20 öre	10 öre	5 öre.
Netherlands and Netherlands colonies	12½ cents	5 cents	2½ cents.
Persia	5 shahis	2 shahis	1 shahi.

Pays.	25 centimes.	10 centimes.	5 centimes.
Portugal et colonies portugaises.....	50 reis	20 reis	10 reis.
Russie.....	7 kopeks.	3 kopeks.	2 kopeks.
Serbie.....	50 paras	20 paras	10 paras.
Suède.....	20 öre	10 öre	5 öre.
Turquie.....	50 paras	20 paras	10 paras.
Mexique.....	6centavos.	3centavos.	2centavos.
Pérou.....	5centavos.	2centavos.	1centavo.
Salvador.....	5centavos de peso.	2centavos de peso.	1 centavo de peso.

Countries.	25 centimes.	10 centimes.	5 centimes.
Portugal and Portuguese colonies.....	50 reis	20 reis	10 reis.
Russia.....	7 kopecks	3 kopecks.	2 kopecks.
Servia.....	50 paras	20 paras	10 paras.
Sweden.....	20 öre	10 öre	5 öre.
Turkey.....	50 paras	20 paras	10 paras.
Mexico.....	6centavos.	3centavos.	2centavos.
Peru.....	5centavos.	2centavos.	1centavo.
Salvador.....	5centavos de peso.	2centavos de peso.	1 centavo de peso.

2. En cas de changement du système monétaire dans l'un des pays susmentionnés, l'Administration de ce pays doit s'entendre avec l'Administration des Postes suisses pour modifier les équivalents ci-dessus; il appartient à cette dernière administration de faire notifier la modification à tous les autres offices de l'Union par l'intermédiaire du Bureau international.

3. Toute administration a la faculté de recourir, si elle le juge nécessaire, à l'entente prévue au paragraphe précédent en cas de modification importante dans la valeur de sa monnaie.

4. Les fractions monétaires résultant, soit du complément de taxe applicable aux correspondances insuffisamment affranchies, soit de la combinaison des taxes de l'Union avec les taxes étrangères ou avec les surtaxes prévues par l'article 5 de la Convention, peuvent être arrondies par les administrations qui en effectuent la perception. Mais la somme à ajouter de ce chef ne peut, dans aucun cas, excéder la valeur d'un vingtième de franc (cinq centimes).

V.

Correspondance avec les pays étrangers à l'Union.

1. Les offices de l'Union qui ont des relations avec des pays étrangers à l'Union fournissent aux autres offices de l'Union un tableau conforme au modèle C annexé au présent Règlement, et indiquant,

2. In case of change in the monetary system in one of the above-named countries, the Administration of that country must have an understanding with the Swiss Postal Administration in order to modify the above equivalents: it devolves upon the latter Administration to give notice of this modification to all the other offices of the Union through the intermediary of the International Bureau.

3. Any Administration has the right to have recourse, if it deems it necessary, to the understanding provided for in the preceding paragraph, in case of an important modification in the value of its money.

4. The monetary fractions resulting either from the complement of the charge applicable to insufficiently prepaid correspondence, or from the combination of the Union postages with the foreign postages, or with the surcharges contemplated by Article 5 of the Convention, may be rounded off by the Administrations which collect them. But the sum to be added on this account cannot, in any case, exceed the value of one-twentieth of a franc (five centimes).

V.

Correspondence with Countries foreign to the Union.

1. The offices of the Union which have relations with countries foreign to the Union, furnish to the other offices of the Union a table conformable to model C annexed to the present Regulations, and indi-

avec les conditions d'envoi, les taxes dues pour le transport en dehors de l'Union des correspondances à destination ou provenant des pays précités. Dans le cas prévu par le dixième alinéa de l'article 12 de la Convention, il peut être ajouté cinq centimes par port simple de lettres et deux centimes par port simple d'autres objets.

2. Par application de l'article 12 de la Convention, il est perçu, en sus des taxes étrangères indiquées au tableau C :

1^o Par l'office de l'Union expéditeur de correspondances affranchies pour l'étranger, les prix d'affranchissement respectivement applicables aux correspondances de même nature pour le pays de sortie de l'Union ;

2^o Par l'office de l'Union destinataire de correspondances non affranchies ou partiellement affranchies d'origine étrangère, savoir :

a. Pour les lettres, la taxe applicable aux lettres non affranchies provenant du pays de l'Union qui sert d'intermédiaire ;

b. Pour les autres objets, une taxe égale au prix d'affranchissement des objets similaires qui sont adressés du pays de l'Union destinataire dans le pays de l'Union servant d'intermédiaire.

cating, with the conditions of dispatch, the rates due for the conveyance outside of the Union of the correspondence for or from the aforesaid countries. In the case provided for by the tenth paragraph of Article 12 of the Convention, there may be added five centimes per single rate of letters and two centimes per single rate of other articles.

2. In application of Article 12 of the Convention, there is levied in addition to the foreign rates indicated in table C :

1st. By the office of the Union forwarding prepaid correspondence for countries outside the Union, the rates of prepayment respectively applicable to correspondence of the same nature for the country of egress from the Union ;

2nd. By the office of the Union to which is addressed unpaid or partially paid correspondence of foreign origin, as follows :

a. For letters, the rate applicable to the unpaid letters coming from the country of the Union which serves as the intermediary ;

b. For other articles, a charge equal to the prepaid rate on similar articles which are addressed from the Union country of destination to the Union country serving as the intermediary.

VI.

Application des timbres.

1. Les correspondances originaires des pays de l'Union sont frappées d'un timbre indiquant le lieu d'origine et la date du dépôt à la poste.

2. Les correspondances originaires des pays étrangers à l'Union sont frappées par l'office de l'Union qui les a recueillies, d'un timbre indiquant le point et la date d'entrée dans le service de cet office.

3. Les correspondances non affranchies ou insuffisamment affranchies sont, en outre, frappées du

VI.

Application of Stamps.

1. Correspondence originating in countries of the Union is impressed with a stamp indicating the place of origin and the date of posting.

2. Correspondence originating in countries foreign to the Union is impressed, by the office of the Union which has received it, with a stamp indicating the point and date of entrance into the service of that office.

3. Unpaid or insufficiently prepaid correspondence is, in addition, impressed with the stamp T (tax to

timbre T (taxe à payer) dont l'application incombe à l'office du pays d'origine, s'il s'agit de correspondances originaires de l'Union, et à l'office du pays d'entrée, s'il s'agit de correspondances originaires des pays étrangers à l'Union.

4. Les objets recommandés doivent porter la marque spéciale (étiquette ou timbre) adoptée pour les envois de l'espèce par le pays d'origine.

5. Les timbres ou marques dont l'emploi est prescrit au présent article sont apposés du côté de la suscription de l'envoi.

6. Tout objet de correspondance ne portant pas le timbre T est considéré comme affranchi et traité en conséquence, sauf erreur évidente.

VII.

Indication du nombre de ports et du montant des taxes étrangères.

1. Lorsqu'une lettre ou tout autre objet de correspondance est passible, en raison de son poids, de plus d'un port simple, l'office d'origine ou d'entrée dans l'Union, suivant le cas, indique, à l'angle gauche supérieur de la suscription, en chiffres ordinaires, le nombre des ports perçus ou à percevoir.

2. Cette mesure n'est pas de rigueur pour les correspondances dûment affranchies.

3. Les taxes étrangères dues, en vertu de l'article 12 de la Convention et de l'article V du présent Règlement, pour le parcours en dehors de l'Union des correspondances à destination ou provenant des pays étrangers à l'Union, sont indiquées, à l'angle gauche inférieur de la suscription de chaque objet, savoir :

1° Par l'office du pays d'origine et en chiffres rouges, s'il s'agit de correspondances régulièrement affranchies originaires de l'Union ;

2° Par l'office du pays d'entrée

be paid), the application of which devolves upon the office of the country of origin in cases of correspondence originating in the Union, and upon the office of the country of entry in cases of correspondence originating in countries foreign to the Union.

4. Registered articles must bear the special mark (label or stamp) adopted for articles of a like nature by the country of origin.

5. The stamps or marks, the employment of which is prescribed by the present Article, are placed on the address side of the packet.

6. Every article of correspondence not bearing the stamp T is considered as prepaid and treated accordingly, unless there be an obvious error.

VII.

Indication of the Number of Rates and the Amount of the Foreign Charges.

1. When a letter or other article of correspondence is liable, by reason of its weight, to more than a single rate, the office of origin or of entry into the Union, as the case may be, indicates, at the upper left corner of the address, in ordinary figures, the number of rates paid or to be paid.

2. This regulation is not obligatory for the fully prepaid correspondence.

3. The foreign charges due by virtue of Article 12 of the Convention and of Article V of the present Regulations, for the conveyance outside of the Union of correspondence for or from countries foreign to the Union, are indicated at the lower left corner of the address of each article, as follows :

1st. By the office of the country of origin, in red figures, in case of regularly prepaid correspondence originating in the Union ;

2d. By the office of the country

dans l'Union et en chiffres bleus, s'il s'agit de correspondances d'origine étrangère, à taxer par l'office de l'Union destinataire.

of entry into the Union, in blue figures, in case of correspondence of foreign origin to be charged by the Union office of destination.

VIII.

VIII.

Affranchissement insuffisant.

Insufficient Prepayment.

1. Lorsqu'un objet est insuffisamment affranchi au moyen de timbres-poste, l'office expéditeur indique en chiffres noirs, apposés à côté des timbres-poste, le montant de l'insuffisance en l'exprimant en francs et centimes.

1. When an article is insufficiently prepaid by means of postage-stamps, the dispatching office indicates, in black figures placed at the side of the postage-stamps, the amount of the insufficiency, expressing it in francs and centimes.

2. D'après cette indication, le bureau d'échange du pays de destination taxe l'objet au double de l'insuffisance constatée.

2. According to this indication, the exchange office of the country of destination charges the article with double the insufficiency ascertained.

3. Dans le cas où il a été fait usage de timbres-poste non valables pour l'affranchissement, il n'en est tenu aucun compte. Cette circonstance est indiquée par le chiffre zéro (0), placé à côté des timbres-poste.

3. In case use be made of postage-stamps not valid for prepayment, no account is taken of them. This circumstance is indicated by the cipher (0), placed at the side of the postage-stamps.

IX.

IX.

Feuilles d'avis.

Letter Bills.

1. Les feuilles d'avis accompagnant les dépêches échangées entre deux administrations de l'Union sont conformes au modèle A joint au présent Règlement.

1. The letter bills accompanying the mails exchanged between two Administrations of the Union are in conformity with the model A annexed to the present Regulations.

2. Les objets recommandés sont inscrits au tableau n° I de la feuille d'avis avec les détails suivants: le nom du bureau d'origine, le nom du destinataire et le lieu de destination, ou seulement le nom du bureau d'origine et le numéro d'inscription de l'objet à ce bureau.

2. The registered articles are entered in Table No. I of the letter bill, with the following details: The name of the office of origin, the name of the addressee, and the place of destination, or simply the name of the office of origin and the number given to the article at that office.

3. Lorsque le nombre des objets recommandés expédiés habituellement d'un bureau d'échange à un autre le comporte, il peut être fait usage d'une liste spéciale et détachée, pour remplacer le tableau n° I de la feuille d'avis.

3. When the number of registered articles usually sent from one office of exchange to another requires it, a special and separate list may be used to replace Table No. I of the letter bill.

4. Au tableau n° II, on inscrit, avec les détails que ce tableau com-

4. In Table No. II are to be entered, with the details which this

porte, les dépêches closes qui accompagnent les envois directs.

5. Lorsqu'il est jugé nécessaire, pour certaines relations, de créer d'autres tableaux ou rubriques sur la feuille d'avis, la mesure peut être réalisée d'un commun accord entre les administrations intéressées.

6. Lorsqu'un bureau d'échange n'a aucun objet à livrer à un bureau correspondant, il n'en doit pas moins envoyer, dans la forme ordinaire, une dépêche qui se compose uniquement de la feuille d'avis.

X.

Objets recommandés.

1. Les objets recommandés et, s'il y a lieu, la liste spéciale prévue au paragraphe 3 de l'article IX, sont réunis en un paquet distinct, qui doit être convenablement enveloppé et cacheté de manière à en préserver le contenu.

2. Ce paquet, entouré de la feuille d'avis, est placé au centre de la dépêche.

3. La présence, dans la dépêche, d'un paquet d'objets recommandés dont la description est faite sur la liste spéciale mentionnée au paragraphe 1^{er} ci-dessus, doit être annoncée par l'application, en tête de la feuille d'avis, soit d'une annotation spéciale, soit de l'étiquette ou de timbre de recommandation en usage dans le pays d'origine.

4. Il est entendu que le mode d'emballage et de transmission des objets recommandés, prescrit par les paragraphes 1 et 2 ci-dessus, s'applique seulement aux relations ordinaires. Pour les relations importantes, il appartient aux administrations intéressées de prescrire, d'un commun accord, des dispositions particulières, sous réserve, dans l'un comme dans l'autre cas, des mesures exceptionnelles à prendre par les chefs des bureaux d'échange, lorsqu'ils ont à assurer la transmission d'objets recommandés qui, par

table requires, the closed mails which accompany the direct dispatches.

5. When it is deemed necessary, for certain relations, to make other tables or headings upon the letter bill, the measure may be accomplished by mutual agreement between the Administrations interested.

6. When an exchange office has no article to forward to a corresponding office, it must nevertheless send, in the ordinary form, a mail which is composed solely of the letter bill.

X.

Registered Articles.

1. The registered articles and, if necessary, the special list specified in paragraph 3 of Article IX, are placed together in a separate packet, which must be suitably inclosed and sealed so as to preserve its contents.

2. This packet, with the letter bill around it, is placed in the center of the mail.

3. The presence in the mail of a packet of registered articles, the description of which is given upon the special list mentioned in paragraph 1 above, must be announced by the application at the head of the letter bill, either of a special entry, or of the label, or of the registration stamp in use in the country of origin.

4. It is understood that the mode of making up and transmitting registered articles prescribed by paragraphs 1 and 2 above, applies only to ordinary relations. For important relations, it appertains to the Administrations interested to prescribe, by mutual agreement, special arrangements, under reservation, in the one case as in the other, of the exceptional measures to be taken by the chiefs of the exchange offices, when they have to assure the transmission of registered articles which, from their na-

leur nature, leur forme ou leur volume, ne seraient pas susceptibles d'être insérés dans la dépêche.

ture, their form, or their bulk, cannot be inserted in the mail.

XI.

XI.

Indemnité pour la perte d'un envoi recommandé.

Indemnity for the Loss of a Registered Article.

L'obligation de payer l'indemnité, en cas de perte d'un objet recommandé, incombe à l'administration dont relève le bureau expéditeur, sauf recours, s'il y a lieu, contre l'administration responsable.

The obligation to pay the indemnity in case of the loss of a registered article, devolves upon the Administration to which the dispatching office is subordinate, subject to appeal, if necessary, to the Administration responsible for the loss.

XII.

XII.

Confection des dépêches.

Making up the Mails.

1. En règle générale, les objets qui composent les dépêches doivent être classés et enliassés par nature de correspondance.

1. As a general rule, the articles of which the mails consist must be classified and put up in bundles according to the nature of the correspondence.

2. Toute dépêche, après avoir été ficelée intérieurement, est enveloppée de papier fort en quantité suffisante pour éviter toute détérioration du contenu, puis ficelée extérieurement et cachetée à la cire ou au moyen d'un cachet en papier gommé, avec l'empreinte du cachet du bureau. Elle est munie d'une suscription imprimée portant, en petits caractères, le nom du bureau expéditeur et, en caractères plus forts, le nom du bureau destinataire: "de . . . pour. . ."

2. Every mail, after having been first tied with string, is inclosed in strong paper of sufficient quantity to prevent any injury to the contents, then tied again on the outside and sealed with wax, or by means of a gummed paper label bearing an impression of the seal of the office. The mail is furnished with a printed address bearing, in small characters, the name of the dispatching office, and in larger characters the name of the office of destination: "From"
"For"

3. Si le volume de la dépêche le comporte, elle est renfermée dans un sac convenablement fermé, cacheté et étiqueté.

3. If the size of the mail requires it, it is inclosed in a bag properly closed, sealed, and labeled.

4. Les sacs doivent être renvoyés vides au bureau expéditeur par le prochain courrier, sauf autre arrangement entre les offices correspondants.

4. The bags must be returned empty to the dispatching office by the next mail, subject to other arrangement between the corresponding offices.

XIII.

XIII.

Vérification des dépêches.

Verification of the Mails.

1. Le bureau d'échange qui reçoit une dépêche constate, en

1. The office of exchange which receives a mail ascertains, in the first

premier lien, si les inscriptions sur la feuille d'avis et, le cas échéant, sur la liste des objets recommandés, sont exactes.

2. Lorsqu'il reconnaît des erreurs ou des omissions, il opère immédiatement les rectifications nécessaires sur les feuilles ou listes, en ayant soin de biffer d'un trait de plume les indications erronées, de manière à laisser reconnaître les inscriptions primitives.

3. Ces rectifications s'effectuent par le concours de deux agents. A moins d'une erreur évidente, elles prévalent sur la déclaration originale.

4. Un bulletin de vérification, conforme au modèle B annexé au présent Règlement, est dressé par le bureau destinataire, et envoyé sans délai, sous recommandation d'office, au bureau expéditeur.

5. Celui-ci, après examen, le renvoie avec ses observations, s'il y a lieu.

6. En cas de manque d'une dépêche, d'un objet recommandé, de la feuille d'avis ou de la liste spéciale, le fait est constaté immédiatement dans la forme voulue, par deux agents du bureau d'échange destinataire, et porté à la connaissance du bureau d'échange expéditeur, au moyen du bulletin de vérification. Si le cas le comporte, ce dernier bureau peut, en outre, être avisé par télégramme aux frais de l'office expéditeur du télégramme.

7. Lorsque le bureau destinataire n'a pas fait parvenir par le premier courrier au bureau expéditeur un bulletin de vérification constatant des erreurs ou des irrégularités quelconques, l'absence de ce document vaut comme accusé de réception de la dépêche et de son contenu, jusqu'à preuve du contraire.

place, if the entries upon the letter-bill and—the case occurring—upon the list of registered articles, are correct.

2. When it detects errors or omissions, it immediately makes the necessary corrections on the letter-bills or lists, taking care to strike out the erroneous entries with a pen, in such a manner as to let the original entries be seen.

3. These corrections are made by the concurrence of two officers. Except in the case of an obvious error, they are accepted in preference to the original statement.

4. A bulletin of verification, in conformity with model B annexed to the present Regulations, is prepared by the receiving office and sent without delay, under official registration, to the dispatching office.

5. The latter, after examination, returns it with any observations to which it may give rise.

6. In case of the failure of a mail, of a registered article, of the letter-bill, or of the special list, the circumstance is immediately authenticated, in the manner agreed upon, by two officers of the receiving exchange office, and reported to the dispatching exchange office by means of a bulletin of verification. If needful, the latter office may also be advised thereof by telegram, at the expense of the office which sends the telegram.

7. In case the receiving office has not forwarded by the first mail to the dispatching office a note of verification reporting errors or irregularities of any kind, the absence of that document is to be regarded as evidence of the due receipt of the mail and of its contents, until proof to the contrary.

XIV.

Objets recommandés.—Conditions de forme et de fermeture.

Aucune condition spéciale de forme ou de fermeture n'est exigée

XIV.

Registered Articles.—Conditions of form and fastening.

No special condition of form or fastening is required for the regis-

pour les objets recommandés. Chaque office a la faculté d'appliquer à ces envois les règles établies dans son service intérieur.

tered articles. Each office has the right to apply to this correspondence the regulations established in its interior service.

XV.

Cartes postales.

1. Les cartes postales doivent être expédiées à découvert. L'une des faces est réservée à l'adresse seule. La correspondance est inscrite au verso.

2. Les cartes postales ne peuvent excéder les dimensions suivantes :

Longueur, 14 centimètres ;

Largeur, 9 centimètres.

3. Autant que possible, les cartes postales émises spécialement en vue de la circulation dans l'Union, doivent porter un timbre fixe et le titre *Union postale universelle* suivie du nom du pays d'origine. Ce titre, lorsqu'il n'est pas en langue française, est reproduit en cette langue.

4. Les cartes postales émanant des offices de l'Union sont seules admises à la circulation dans le service international.

5. Il est interdit de joindre ou d'attacher aux cartes postales des objets quelconques.

XVI.

Papiers d'affaires.

1. Sont considérés comme papiers d'affaires, et admis comme tels à la modération de port consacrée par l'article 5 de la Convention, toutes les pièces et tous les documents, écrits ou dessinés en tout ou en partie à la main, qui n'ont pas le caractère d'une *correspondance actuelle et personnelle*, tels que les pièces de procédure, les actes de tout genre dressés par les officiers ministériels, les lettres de voiture ou connaissements, les factures, les différents documents de service des compagnies d'assurance, les copies ou extraits d'actes sous seing privé écrits sur papier timbré ou non tim-

XV.

Post Cards.

1. Post-cards must be forwarded without cover. One of the sides is reserved for the address alone. The communication is written on the other side.

2. Post-cards cannot exceed the following dimensions :

Length, 14 centimeters ;

Width, 9 centimeters.

3. As far as possible, post-cards issued specially for circulation within the Union, should bear an impressed stamp and the title "*Universal Postal Union*," followed by the name of the country of origin. This title, when not in the French language, is to be repeated in that language.

4. Post-cards issuing from Union offices are alone admitted to circulation in the international service.

5. It is forbidden to join or to attach to post-cards any article whatsoever.

XVI.

Commercial Papers.

1. The following are considered as commercial papers and admitted as such to the reduced postage sanctioned by Article 5 of the Convention, viz: All instruments or documents written or drawn wholly or partly by hand, which have not the character of an *actual and personal correspondence*, such as papers of legal procedure, deeds of all kinds drawn up by public functionaries, way bills or bills of lading, invoices, the various documents of insurance companies, copies or extracts of deeds under private seal written on stamped or unstamped paper, scores or sheets of manuscript music, man-

bré, les partitions ou feuilles de musique manuscrites, les manuscrits d'ouvrages expédiés isolément, etc.

2. Les papiers d'affaires doivent être envoyés sous bande ou dans une enveloppe ouverte.

uscripts of works forwarded separately, &c.

2. Commercial papers must be forwarded under band or in an open envelope.

XVII.

Imprimés de toute nature.

1. Sont considérés comme imprimés et admis comme tels à la modération de port consacrée par l'article 5 de la Convention, les journaux et ouvrages périodiques, les livres brochés ou reliés, les brochures, les papiers de musique, les cartes de visite, les cartes-adresses, les épreuves d'imprimerie avec ou sans les manuscrits s'y rapportant, les gravures, les photographies, les dessins, plans, cartes géographiques, catalogues, prospectus, annonces et avis divers, imprimés, gravés, lithographiés ou autographiés, et, en général, toutes les impressions ou reproductions obtenues sur papier, sur parchemin ou sur carton, au moyen de la typographie, de la lithographie ou de tout autre procédé mécanique facile à reconnaître, hormis le décalque.

2. Sont exclus de la modération de port, les timbres ou formules d'affranchissement, oblitérés ou non, ainsi que tous imprimés constituant le signe représentatif d'une valeur.

3. Le caractère de *correspondance actuelle et personnelle* ne peut pas être attribué aux indications ci-après, savoir :

1^o A la signature de l'envoyeur ou à la désignation de son nom ou de sa raison sociale, de sa qualité, du lieu d'origine et de la date d'envoi ;

2^o A la dédicace ou à l'hommage de l'auteur ;

3^o Aux traits ou signes simplement destinés à marquer les passages d'un texte, pour appeler l'attention ;

4^o Aux prix ajoutés sur les cotes

XVII.

Printed matter of all kinds.

1. The following are considered as printed matter, and admitted as such to the reduced postage sanctioned by Article 5 of the Convention, viz: Newspapers and periodical works, books stitched or bound, pamphlets, sheets of music, visiting-cards, address cards, proofs of printing, with or without the manuscripts relating thereto, engravings, photographs, drawings, plans, geographical maps, catalogues, prospectuses, announcements and notices of various kinds, whether printed, engraved, or lithographed, and, in general, all impressions or copies obtained upon paper, parchment, or card-board, by means of printing, lithographing, or any other mechanical process easy to recognize, except the copying-press.

2. The following are excluded from the reduced postage, viz: Stamps or forms of prepayment, whether obliterated or not, as well as all printed articles constituting the representative sign of a monetary value.

3. The character of *actual and personal correspondence* cannot be ascribed to the following, viz:

1st. To the signature of the sender or to the designation of his name, of his profession, of his rank, of the place of origin, and of the date of dispatch.

2d. To a dedication or mark of respect offered by the author.

3d. To the figures or signs merely intended to mark the passages of a text, in order to call attention to them.

4th. To the prices added upon the

ou prix courants de bourse ou de marchés ;

5° Enfin, aux annotations ou corrections faites sur les épreuves d'imprimerie ou de composition musicale et se rapportant au texte ou à la confection de l'ouvrage.

4. Les imprimés doivent être, soit placés sous bande, sur rouleau, entre des cartons, dans un étui ouvert d'un côté ou aux deux extrémités, ou dans une enveloppe non fermée, soit simplement pliés de manière à ne pas dissimuler la nature de l'envoi, soit enfin entourés d'une ficelle facile à dénouer.

5. Les cartes-adresses et tous imprimés présentant la forme et la consistance d'une carte non pliée peuvent être expédiés sans bande, enveloppe, lien ou pli.

XVIII.

Échantillons.

1. Les échantillons de marchandises ne sont admis à bénéficier de la modération de port qui leur est attribuée par l'article 5 de la Convention que sous les conditions suivantes :

2. Ils doivent être placés dans des sacs, des boîtes ou des enveloppes mobiles, de manière à permettre une facile vérification.

3. Ils ne peuvent avoir aucune valeur marchande, ni porter aucune écriture à la main que le nom ou la raison sociale de l'expéditeur, l'adresse du destinataire, une marque de fabrique ou de marchand, des numéros d'ordre et des prix.

XIX.

Objets groupés.

Il est permis de réunir dans un même envoi des échantillons de marchandises, des imprimés et des papiers d'affaires, mais sous réserve des conditions suivantes :

1° Que chaque objet pris isolément ne dépassera pas les limites

quotations or prices current of exchange or markets.

5th. Lastly, to annotations or corrections made upon proofs of printing or musical compositions, and relating to the text or to the execution of the work.

Printed matter must be either placed under band, upon a roller, between boards, in a case open at one side or at both ends, or in an unclosed envelope, or simply folded in such a manner as not to conceal the nature of the packet, or, lastly, tied by a string easy to unfasten.

5. Address cards, and all printed matter presenting the form and consistency of an unfolded card, may be forwarded without band, envelope, fastening, or fold.

XVIII.

Samples.



1. Samples of merchandize are admitted to the advantage of the reduction of postage which is granted to them by Article 5 of the Convention only under the following conditions :

2. They must be placed in bags, boxes, or removable envelopes, in such a manner as to admit of easy inspection.

3. They must not have any salable value, nor bear any manuscript other than the name or profession of the sender, the address of the addressee, a manufacturer's or trade mark, numbers, and prices.

XIX.

Articles grouped together.

It is permitted to inclose in the same packet samples of merchandize, printed matter and commercial papers, but subject to the following conditions :

1st. That each article taken singly shall not exceed the limits

qui lui sont applicables quant au poids et quant à la dimension ;

2° Que le poids total ne peut pas dépasser deux kilogrammes par envoi ;

3° Que la taxe sera au minimum de 25 centimes si l'envoi contient des papiers d'affaires, et de 10 centimes s'il se compose d'imprimés et d'échantillons.

which are applicable to it as regards weight and size.

2d. That the total weight must not exceed two kilogrammes per package.

3d. That the minimum charge shall be 25 centimes when the packet contains commercial papers, and 10 centimes when it consists of printed matter and samples.

XX.

Correspondances réexpédiées.

1. En exécution de l'article 10 de la Convention, et sauf les exceptions prévues au paragraphe 2 du présent article, les correspondances de toute nature adressées, dans l'Union, à des destinataires ayant changé de résidence sont traitées par l'office distributeur, comme si elles avaient été adressées directement du lieu d'origine au lieu de la nouvelle destination.

2. A l'égard des envois du service interne de l'un des pays de l'Union qui entrent, par suite de réexpédition, dans le service d'un autre pays de l'Union, on observe les règles suivantes :

1° Les envois non affranchis ou insuffisamment affranchis pour leur premier parcours sont traités comme correspondances internationales et frappés, par l'office distributeur, de la taxe applicable aux envois de même nature directement adressés du pays d'origine dans le pays où se trouve le destinataire ;

2° Les envois régulièrement affranchis pour leur premier parcours, et dont le complément de taxe afférent au parcours ultérieur n'a pas été acquitté avant leur réexpédition, sont frappés, suivant leur nature, par l'office distributeur, d'une taxe égale à la différence entre le prix d'affranchissement déjà acquitté et celui qui aurait été perçu, si les envois avaient été expédiés primitivement sur la nouvelle destination. Le montant de cette différence doit être exprimé en francs

XX.

Reforwarded Correspondence.

1. In execution of Article 10 of the Convention, and subject to the exceptions specified in paragraph 2 of the present Article, correspondence of every kind circulating in the Union, addressed to persons who have changed their residence, is treated by the delivering office as if it had been addressed directly from the place of origin to the place of new destination.

2. With regard to articles of the interior service of one of the countries of the Union, which enter, in consequence of reforwarding, into the service of another country of the Union, the following rules are observed :

1st. Articles unpaid or insufficiently paid for their first transmission, are treated as international correspondence, and subjected by the delivering office to the charge applicable to articles of the same nature addressed directly from the country of origin to the country in which the addressee may be.

2d. Articles regularly paid for their first transmission, and upon which the remainder of the charge relating to the further transmission has not been paid previous to reforwarding, are subjected, according to their nature, by the delivering office, to a charge equal to the difference between the prepaid rate already paid and that which would have been levied if the articles had been originally dispatched to their new destination. The amount of this difference must be expressed

et centimes à côté des timbres-poste par l'office réexpéditeur

Dans l'un et l'autre cas, les taxes prévues ci-dessus restent exigibles du destinataire, alors même que, par suite de réexpéditions successives, les envois reviennent dans le pays d'origine.

3. Les objets de toute nature mal dirigés sont, sans aucun délai, réexpédiés par la voie la plus prompte sur leur destination.

XXI.

Rebuts.

1. Les correspondances de toute nature qui sont tombées en rebut, pour quelque cause que ce soit, doivent être renvoyées, aussitôt après les délais de conservation voulus par les règlements du pays destinataire, par l'intermédiaire des bureaux d'échange respectifs et en une liasse spéciale étiquetée: *Rebuts*.

2. Toutefois, les correspondances recommandées, tombées en rebut, sont renvoyées au bureau d'échange du pays d'origine et comme s'il s'agissait de correspondances recommandées à destination de ce pays, sauf qu'en regard de l'inscription nominative au tableau n° I de la feuille d'avis ou sur la liste détachée la mention *Rebuts* est consignée dans la colonne d'observations par le bureau réexpéditeur.

3. Par exception, deux offices correspondants peuvent, d'un commun accord, adopter un autre mode de renvoi de rebuts, ainsi que se dispenser de se renvoyer réciproquement certains imprimés considérés comme dénués de valeur.

XXII.

Statistique des frais de transit.

1. Les statistiques à effectuer une fois tous les deux ans, en exécution des articles 4 et 12 de la Con-

in francs and centimes at the side of the postage stamps by the reforwarding office.

In both cases, the charges contemplated above remain to be defrayed by the addressees, even if, owing to successive reforwardings, the articles should return to the country of origin.

3. Articles of every kind missent are, without delay, reforwarded by the most rapid route to their destination.

XXI.

Undelivered Correspondence.

1. The correspondence of every kind which is not delivered, from whatever cause, must be returned immediately after the expiration of the period for keeping it required by the laws of the country of destination, through the intermediary of the respective offices of exchange, and in a special bundle labeled "*Rebuts*".

2. Nevertheless, undelivered registered correspondence is returned to the exchange office of the country of origin as if it were registered correspondence addressed to that country, except that as regards the descriptive entry in Table No. I of the letter bill, or in the separate list, the word "*Rebuts*" is entered in the column of observations by the returning office.

3. As an exception, two corresponding offices may, by mutual agreement, adopt a different mode of returning undelivered correspondence, and may also dispense with the reciprocal return of certain printed matter considered to be without value.

XXII.

Statistics of Transit Expenses.

1. The statistics to be taken once every two years in execution of Articles 4 and 12 of the Convention,

vention, pour le décompte, tant des frais de transit dans l'Union que des taxes afférentes au transport en dehors des limites de l'Union, sont établies d'après les dispositions des articles suivants, pendant toute la durée du mois de mai ou du mois de novembre alternativement, de manière que la première statistique aura lieu en novembre 1879, la seconde en mai 1881, la troisième en novembre 1883, et ainsi de suite.

2. La statistique de novembre 1879 sortira ses effets à partir du 1^{er} avril de la même année jusqu'au 31 décembre 1880. Chaque statistique ultérieure servira de base pour les paiements se rapportant à l'année courante et à celle qui suit.

3. Si, pendant la période d'application de la statistique, il vient à entrer dans l'Union un pays ayant des relations importantes, les pays de l'Union dont la situation pourrait, par suite de cette circonstance, se trouver modifiée sous le rapport du paiement des droits de transit, ont la faculté de réclamer une statistique spéciale se rapportant exclusivement aux pays nouvellement entrés.

XXIII.

Correspondances à découvert.

1. L'office servant d'intermédiaire pour la transmission des correspondances échangées à découvert, soit entre deux pays de l'Union, soit entre un pays de l'Union et un pays étranger à celle-ci, dresse d'avance, pour chacun de ses correspondants de l'Union, un tableau conforme au modèle D, annexé au présent Règlement et dans lequel il indique, en distinguant, s'il y a lieu, les diverses voies d'acheminement, les prix de port au poids lui revenant pour le transport dans l'Union de l'une et de l'autre catégorie de ces correspondances au moyen des services dont il dispose, ainsi que les prix de port au poids à bonifier, le cas échéant, par lui-même, à d'autres offices de l'Union, pour le transport

for the settlement as well of the expenses of transit within the Union as of the charges relating to the conveyance beyond the limits of the Union, are established according to the provisions of the following Articles, during the entire month of May or of November alternately, in such a manner that the first statistics shall take place in November, 1879; the second in May, 1881; the third in November, 1883; and so on.

2. The statistics of November, 1879, shall take effect from the 1st of April in the same year, until the 31st December, 1880. Each subsequent statistical account shall serve as basis for the payments relating to the current year, and to that which follows.

3. If during the period of application of the statistics, a country having important relations should enter the Union, the countries of the Union whose situation might, in consequence of this circumstance, be affected in regard to the payment of transit rates, have the option to demand special statistics relating exclusively to the countries recently admitted.

XXIII.

Correspondence in Open Mails.

1. The office serving as the medium for the transmission of correspondence exchanged in open mails, either between two countries of the Union or between a country of the Union and a country foreign to it, prepares beforehand, for each of its correspondents of the Union, a table in conformity with model D annexed to the present Regulations, and in which it indicates, distinguishing, if needful, the different routes of transmission, the rates or payment by weight due to it for conveyance within the Union of both categories of correspondence by means of the services at its disposal, as well as the rates of payment by weight to be paid, the case occurring, by the office itself to other

ultérieur desdites correspondances dans l'Union. Au besoin, il se renseigne en temps utile, auprès des offices des pays à traverser, sur les voies que devront suivre les correspondances et sur les prix à leur appliquer.

2. Un exemplaire du tableau D est remis par ledit office à l'office correspondant intéressé et sert de base à un décompte spécial à établir entre eux, du chef du port intermédiaire dans l'Union des correspondances dont il s'agit. Ce décompte est dressé par l'office qui reçoit les correspondances et soumis à la vérification de l'office expéditeur.

3. L'office expéditeur établit, d'après les données de la formule D, fournie par son correspondant, des tableaux conformes au modèle E ci-annexé et destinés à relater, pour chaque dépêche, les frais de port intermédiaire dans l'Union des correspondances sans distinction d'origine, comprises dans la dépêche pour être acheminées par l'intermédiaire dudit correspondant. A cet effet, le bureau d'échange expéditeur inscrit au cadre n° I d'une formule E, qu'il joint à son envoi, le poids total, selon leur nature, des correspondances de l'espèce qu'il livre à déconvvert au bureau d'échange correspondant, et celui-ci, après vérification, prend livraison de ces correspondances, pour les acheminer vers leurs destinations, en les confondant avec les siennes propres pour le payement, s'il y a lieu, des prix de port ultérieurs.

4. Quant aux frais de transport en dehors du ressort de l'Union des correspondances à destination ou provenant des pays étrangers à l'Union, ils sont évalués d'après les données du tableau C mentionné à l'article V du présent Règlement et inscrits en bloc sur la formule E, savoir :

offices of the Union, for the further conveyance of the said correspondence within the Union. If needful, it communicates in due time with the offices of the countries to be traversed as to the routes the correspondence is to take, and the rates to be applied thereto.

2. A copy of Table D is forwarded by the said office to the corresponding office interested, and serves as the basis of a special account to be established between them with reference to the intermediate conveyance in the Union of the correspondence in question. This account is prepared by the office which receives the correspondence, and is submitted to the examination of the dispatching office.

3. The dispatching office prepares, according to the particulars given in the form D furnished by its correspondent, tables in conformity with model E hereto annexed, and intended to show for each mail the expenses of intermediate conveyance within the Union of the correspondence, without distinction of origin, comprised in the mail to be forwarded by the intermediary of the said corresponding office. With this view, the dispatching exchange office enters in Table No. 1 of a form E, which it joins to its dispatch, the total weight, according to its nature, of the correspondence of this class which it delivers in open mail to the corresponding exchange office, and the latter, after verification, undertakes the further transmission of the correspondence to its destination in mixing it with its own, in respect to the payment, if needful, of the further charges for conveyance.

4. With regard to the expenses of conveyance beyond the limits of the Union of correspondence addressed to or coming from countries foreign to the Union, they are calculated according to the particulars given in the Table C mentioned in Article V of the present Regulations and entered in gross upon the form E, as follows :

Au cadre n° II, s'il s'agit de correspondances affranchies pour l'étranger (frais à la charge de l'office de l'Union expéditeur);

Au cadre n° III, s'il s'agit de correspondances non affranchies venant de l'étranger et de correspondances réexpédiées ou tombées en rebut qui sont grevées de taxes étrangères à rembourser (frais à la charge de l'office de l'Union destinataire).

5. Toute erreur dans la déclaration du bureau d'échange expéditeur du tableau E est signalée immédiatement à ce bureau au moyen d'un bulletin de vérification, nonobstant la rectification opérée sur le tableau lui-même.

6. A défaut de correspondances passibles d'un port intermédiaire ou étranger, il n'est pas dressé de tableau E. Dans le cas de l'omission non justifiée de ce tableau, l'irrégularité est également signalée, au moyen d'un bulletin de vérification, au bureau en faute, et doit être réparée immédiatement par ce dernier.

XXIV.

Dépêches closes.

1. Les correspondances échangées en dépêches closes, entre deux offices de l'Union ou entre un office de l'Union et un office étranger à l'Union, à travers le territoire ou au moyen des services d'un ou de plusieurs autres offices, font l'objet d'un relevé conforme au modèle F annexé au présent Règlement, et qui est établi d'après les dispositions suivantes:

2. En ce qui concerne les dépêches d'un pays de l'Union pour un autre pays de l'Union, le bureau d'échange expéditeur inscrit, à la feuille d'avis pour le bureau d'échange destinataire de la dépêche, le poids net des lettres et des cartes postales et celui des autres objets, sans distinction de l'origine ni de la destination des correspondances. Ces indications sont vérifiées par le bureau destinataire, lequel dresse,

In Table No. II, in the case of paid correspondence for abroad (expense at the charge of the dispatching office of the Union);

In Table No. III, in the case of unpaid correspondence coming from abroad, and of reforwarded or undelivered correspondence marked with foreign charges to be refunded (expense at the charge of the Union office of destination);

5. Any error in the statement of the office of exchange which has dispatched the Table E is immediately notified to that office by means of a bulletin of verification, notwithstanding the correction made in the table itself.

6. If there be no correspondence liable to a charge for intermediate or foreign conveyance, the Table E is not prepared. In case of the unexplained omission of this table, the irregularity is equally reported, by means of a bulletin of verification, to the office in fault, and must be immediately repaired by the latter.

XXIV.

Closed Mails.

1. The correspondence exchanged in closed mails between two offices of the Union, or between an office of the Union and an office foreign to the Union, across the territory, or by means of the services of one or more other offices, forms the object of a statement similar to model F annexed to the present Regulations, and which is prepared according to the following stipulations:

2. As regards the mails from one country of the Union to another country of the Union, the dispatching office of exchange enters in the letter-bill for the office of exchange receiving the mail, the net weight of the letters and post-cards, and of the other articles, without distinction of the origin or destination of the correspondence. These entries are verified by the receiving office, which prepares, at

à la fin de la période de statistique, le relevé mentionné ci-dessus, en autant d'expéditions qu'il y a d'offices intéressés y compris celui du lieu de départ.

3. Dans les quatre jours qui suivent la clôture des opérations de statistique, les relevés F sont transmis, par les bureaux d'échange qui les ont établis, aux bureaux d'échange de l'office débiteur pour être revêtus de leur acceptation. Ceux-ci, après avoir accepté ces relevés, les transmettent à l'administration centrale dont ils relèvent, chargée de les répartir entre les offices intéressés.

4. En ce qui concerne les dépêches closes échangées entre un pays de l'Union et un pays étranger à l'Union, par l'intermédiaire d'un ou de plusieurs offices de l'Union, le transport s'en effectue, dans les deux sens, à la charge dudit pays de l'Union, et les bureaux d'échange de ce pays dressent eux-mêmes, pour chaque dépêche expédiée ou reçue, un relevé F qu'ils transmettent à l'office de sortie ou d'entrée, lequel établit, à la fin de la période de statistique, un relevé général en autant d'expéditions qu'il y a d'offices intéressés, y compris lui-même et l'office de l'Union débiteur. Une expédition de ce relevé est transmise à l'office débiteur, ainsi qu'à chacun des offices qui ont pris part au transport des dépêches.

XXV.

Compte des frais de transit.

1. Les tableaux E et F sont réunis dans un compte particulier par lequel on établit, en francs et centimes, le prix annuel de transit revenant à chaque office en multipliant les totaux par 12. Le soin d'établir ce compte incombe à l'office créancier, qui le transmet à l'office débiteur.

the end of the period for taking the statistics, the statement above mentioned, in as many copies as there are offices interested, including the office of the place of dispatch.

3. In the four days which follow the close of the statistical operations, the statements F are transmitted by the offices of exchange which have prepared them to the offices of exchange of the Administration indebted, in order to be accepted by them. The latter, after having accepted these statements, transmit them to the Central Administration to which they are subordinate, which is charged with distributing them among the offices interested.

4. As regards the closed mails exchanged between a country of the Union and a country foreign to the Union, by the intermediary of one or several offices of the Union, their conveyance is effected in both directions at the charge of the said Union country, and the offices of exchange of that country themselves prepare, for each mail dispatched or received, a statement F, which they transmit to the office of departure or of entry, which prepares, at the end of the statistical period, a general statement, in as many copies as there are offices interested, including itself and the debtor office of the Union. A copy of this statement is transmitted to the debtor office, as well as to each of the offices which have participated in the conveyance of the mails.

XXV.

Account of the Expenses of Transit.

1. The Tables E and F are incorporated in a special account, in which is shown, in francs and centimes, the annual amount of transit payment accruing to each office, by multiplying the totals by 12. The duty of preparing this account devolves upon the creditor office, which transmits it to the debtor office.

2. Le solde résultant de la balance des comptes réciproques entre deux offices est payé par l'office débiteur à l'office créateur, en francs effectifs et au moyen de traites tirées sur la capitale ou sur une place commerciale de ce dernier office.

3. L'établissement, l'envoi et le paiement des comptes des frais de transit, afférents à un exercice, doivent être effectués dans le plus bref délai possible et, au plus tard, avant l'expiration du premier semestre de l'exercice suivant. Passé ce délai, les sommes dues par un office à un autre office sont productives d'intérêts, à raison de cinq pour cent l'an et à dater du jour de l'expiration dudit délai.

4. Est réservée, toutefois, aux offices intéressés la faculté de prendre, d'un commun accord, d'autres dispositions que celles qui sont formulées dans le présent article.

2. The balance resulting from the reciprocal accounts between two offices is paid by the debtor office to the creditor office in effective francs, and by means of bills drawn upon the capital, or upon a commercial place of the latter office.

3. The preparation, transmission, and payment of the accounts of the expenses of transit belonging to a period of service must be effected with the least possible delay, and at the latest, before the expiration of the first six months of the following period of service. When this time has passed, the amounts due by one office to another office are subject to interest at the rate of five per cent. per annum, dating from the day of the expiration of the said delay.

4. Nevertheless, the option is reserved to the offices interested to make, by mutual agreement, other arrangements than those which are set forth in the present Article.

XXVI.

Exceptions en matière de poids.

Il est admis, par mesure d'exception, que les États qui, à cause de leur régime intérieur, ne peuvent adopter le type de poids décimal métrique, ont la faculté d'y substituer l'once *avoir du poids* (28 gr. 3465), en assimilant une demi-once à 15 grammes et deux onces à 50 grammes, et d'élever, au besoin, la limite du port simple des journaux à quatre onces, mais sous la condition expresse que, dans ce dernier cas, le port des journaux ne soit pas inférieur à 10 centimes et qu'il soit perçu un port entier par numéro de journal, alors même que plusieurs journaux se trouveraient groupés dans un même envoi.

XXVI.

Exceptions in matters of Weight.

As an exceptional measure, it is agreed that the States which, in consequence of their interior regulations, are unable to adopt the decimal metrical system of weight, have the right to substitute for it the ounce *avoirdupois* (28.3465 grammes), by assimilating a half ounce to 15 grammes, and two ounces to 50 grammes, and to raise, if needful, the limit of the single rate of postage on newspapers to four ounces, but under the express condition that, in the latter case, the postage on newspapers be not less than 10 centimes, and that an entire rate of postage be charged for each copy of the newspaper, even though several newspapers be included in the same packet.

XXVII.

Réclamation d'objets ordinaires non parvenus.

1. Toute réclamation relative à un objet de correspondance ordinaire non parvenu à destination donne lieu au procédé suivant.

1° Il est remis au réclamant une formule conforme au modèle G ci-annexé, avec prière d'en remplir, aussi exactement que possible, la partie qui le concerne.

2° Le bureau où la réclamation s'est produite transmet la formule directement au bureau correspondant. La transmission s'effectue d'office et sans aucun écrit.

3° Le bureau correspondant fait présenter la formule au destinataire ou à l'expéditeur, selon le cas, avec prière de fournir des renseignements à ce sujet.

4° Munie de ces renseignements, la formule est renvoyée d'office au bureau qui l'a dressée.

5° Dans le cas où la réclamation est reconnue fondée, elle est transmise à l'administration centrale pour servir de base aux investigations ultérieures.

6° A moins d'entente contraire, la formule est rédigée en français ou porte une traduction française.

2. Toute administration peut exiger, par une notification adressée au Bureau international, que l'échange des réclamations, en ce qui la concerne, soit effectué par l'entremise des administrations centrales, ou par l'intermédiaire d'un bureau spécialement désigné.

XXVIII.

Répartition des frais du Bureau international.

1. Les frais communs du Bureau international ne doivent pas dépasser, par année, la somme de

XXVII.

Applications for Ordinary Articles which have failed to reach their Destination.

1. Every application respecting an article of ordinary correspondence which has failed to reach its destination gives rise to the following proceeding:

1st. A form similar to the model G hereto annexed, is handed to the applicant, who is requested to fill up as exactly as possible, the portion which concerns him.

2d. The office at which the application originates transmits the form direct to the corresponding office. It is transmitted officially and without any writing.

3d. The corresponding office causes the form to be handed to the addressee or to the sender, as the case may be, with the request that particulars on the subject be furnished.

4th. Supplied with these particulars, the form is sent back officially to the office which prepared it.

5th. In case the application proves to be well founded, it is transmitted to the Central Administration, to serve as the basis for further investigation.

6th. Unless by agreement to the contrary, the form is drawn up in French, or bears a French translation.

2. Any Administration may require, by means of a notification addressed to the International Bureau, that the exchange of applications, so far as it is concerned, be effected through the intermediary of the Central Administrations, or of an office specially designated.

XXVIII.

Division of the Expenses of the International Bureau.

1. The ordinary expenses of the International Bureau must not exceed the sum of 100,000 francs an-

100,000 francs, non compris les frais spéciaux auxquels donne lieu la réunion d'un congrès ou d'une conférence.

2. L'Administration des Postes suisses surveille les dépenses du Bureau international, fait les avances nécessaires et établit le compte annuel, qui est communiqué à toutes les autres administrations.

3. Pour la répartition des frais, les pays de l'Union sont divisés en sept classes, contribuant chacune dans la proportion d'un certain nombre d'unités, savoir :

1 ^{re} classe	- -	25 unités.
2 ^e " "	- -	20
3 ^e " "	- -	15
4 ^e " "	- -	10
5 ^e " "	- -	5
6 ^e " "	- -	3
7 ^e " "	- -	1

4. Ces coefficients sont multipliés par le nombre des pays de chaque classe, et la somme des produits ainsi obtenus fournit le nombre d'unités par lequel la dépense totale doit être divisée. Le quotient donne le montant de l'unité de dépense.

5. Les pays de l'Union sont classés ainsi qu'il suit, en vue de la répartition des frais :

1^{re} classe : Allemagne, Autriche-Hongrie, États-Unis d'Amérique, France, Inde britannique, ensemble des autres colonies britanniques moins le Canada, Grande-Bretagne, Italie, Russie, Turquie ;

2^e classe : Espagne ;

3^e classe : Belgique, Brésil, Canada, Égypte, Japon, Pays-Bas, Roumanie, Suède, colonies ou provinces espagnoles d'outre mer, colonies françaises, Indes orientales néerlandaises ;

4^e classe : Danemark, Norvège, Portugal, Suisse, colonies portugaises ;

5^e classe : Argentine (République), Grèce, Mexique, Pérou, Serbie ;

6^e classe : colonie de Surinam (ou Guyane néerlandaise), colonie

annually, not including the special expenses to which the meeting of a Congress or of a Conference may give rise.

2. The Administration of the Swiss Post Office superintends the expenses of the International Bureau, makes the necessary advances, and prepares the annual account, which is communicated to all the other Administrations.

3. For the division of the expenses, the countries of the Union are divided into seven classes, each contributing in the proportion of a certain number of units, viz :

1st class	- -	25 units.
2nd " "	- -	20 "
3rd " "	- -	15 "
4th " "	- -	10 "
5th " "	- -	5 "
6th " "	- -	3 "
7th " "	- -	1 "

4. These coefficients are multiplied by the number of countries of each class, and the total of the products thus obtained furnishes the number of units by which the total expense is to be divided. The quotient gives the amount of the unit of expense.

5. The countries of the Union are classified as follows, in view of the division of the expenses :

1st class : Germany, Austria-Hungary, United States of America, France, British India, the whole of the other British colonies except Canada, Great Britain, Italy, Russia, Turkey.

2d class : Spain.

3d class : Belgium, Brazil, Canada, Egypt, Japan, Netherlands, Roumania, Sweden, Spanish colonies or provinces beyond sea, French colonies, Netherland East Indies.

4th class : Denmark, Norway, Portugal, Switzerland, Portuguese colonies.

5th class : Argentine Republic, Greece, Mexico, Peru, Servia.

6th class : Colony of Surinam (or Dutch Guiana), colony of Cura-

de Curaçao (ou Antilles néerlandaises), Luxembourg, Perse, colonies danoises, Salvador;

7^e classe: Monténégro.

coa (or Netherland West Indies), Luxemburg, Persia, Danish colonies, Salvador.

7th class: Montenegro.

XXIX.

Communications à adresser au Bureau international.

1. Le Bureau international sert d'intermédiaire aux notifications régulières et générales qui intéressent les relations internationales.

2. Les administrations faisant partie de l'Union doivent se communiquer notamment par l'intermédiaire du Bureau international:

1^o L'indication des surtaxes qu'elles perçoivent, par application de l'article 5 de la Convention, en plus de la taxe de l'Union, soit pour port maritime, soit pour frais de transport extraordinaire, ainsi que la nomenclature des pays par rapport auxquels ces surtaxes sont perçues, et, s'il y a lieu, la désignation des voies qui en motivent la perception;

2^o L'empreinte du timbre spécial ou de la marque servant à constater la recommandation;

3^o Le modèle de leur formule d'avis de réception;

4^o La collection de leurs timbres-poste;

5^o Enfin, les tableaux C dont l'établissement est prescrit par l'article V du présent Règlement.

3. Toute modification apportée ultérieurement, à l'égard de l'un ou l'autre des cinq points ci-dessus mentionnés, doit être notifiée sans retard de la même manière.

4. Le Bureau international reçoit également de toutes les administrations de l'Union deux exemplaires de tous les documents qu'elles publient, tant sur le service intérieur que sur le service international.

5. En outre, chaque administration fait parvenir, dans le premier se-

XXIX.

Communications to be addressed to the International Bureau.

1. The International Bureau serves as the intermediary for the regular and general notifications which concern the international relations.

2. The Administrations forming the Union must communicate to each other specially through the medium of the International Bureau:

1st. Information of the additional charges which they levy by virtue of Article 5 of the Convention, in addition to the Union rate, whether for sea-postage or for the expenses of extraordinary conveyance, as well as a list of the countries in relation to which these surcharges are levied, and, if needful, the designation of the routes which cause their collection;

2d. The impression of the special stamp or mark serving to authenticate the registration;

3d. The model of their form of advice of receipt;

4th. The collection of their postage stamps;

5th. Lastly, the Tables C, the preparation of which is prescribed by Article V of the present Regulations.

3. Every modification adopted hereafter in regard to one or other of the five points above mentioned, must be notified, without delay, in the same manner.

4. The International Bureau equally receives from all the Administrations of the Union, two copies of all the documents which they publish, as well relating to the interior service as to the international service.

5. Moreover, each Administration transmits, in the first half of

mestre de chaque année, au Bureau international, une série complète de renseignements statistiques, se rapportant à l'année précédente, sous forme de tableaux dressés d'après les indications du Bureau international, qui distribue à cet effet des formules toutes préparées.

6. Les correspondances adressées par les administrations de l'Union au Bureau international, et *vice versa*, sont assimilées, pour la franchise de port, aux correspondances échangées entre les administrations.

each year, to the International Bureau, a complete series of statistical details relating to the preceding year, in the form of tables filled up according to information from the International Bureau, which distributes for this purpose formulas already prepared.

6. The correspondence addressed by the Administrations of the Union to the International Bureau, and *vice versa*, is assimilated, as regards freedom from postage, to the correspondence exchanged between the Administrations.

XXX.

Attributions du Bureau international.

1. Le Bureau international dresse une statistique générale, pour chaque année.

2. Il rédige, à l'aide des documents qui sont mis à sa disposition, un journal spécial en langues allemande, anglaise et française.

3. Tous les documents publiés par le Bureau international sont distribués aux administrations de l'Union, dans la proportion du nombre d'unités contributives assignées à chacune d'elles par l'article XXVIII précédent.

4. Les exemplaires et documents supplémentaires qui seraient réclamés par ces administrations sont payés à part, d'après leur prix de revient.

5. Le Bureau international doit, d'ailleurs, se tenir en tout temps à la disposition des membres de l'Union, pour leur fournir, sur les questions relatives au service international des postes, les renseignements spéciaux dont ils pourraient avoir besoin.

6. Le Bureau international instruit les demandes de modification ou d'interprétation des dispositions qui régissent l'Union. Il notifie les résultats de chaque instruction, et toute modification ou résolution adoptée n'est exécutoire que deux

XXX.

Duties of the International Bureau.

1. The International Bureau prepares general statistics for each year.

2. It publishes, by the aid of the documents which are put at its disposal, a special journal in the German, English, and French languages.

3. All the documents published by the International Bureau are distributed to the Administrations of the Union in the proportion of the number of contributing units assigned to each by Article XXVIII preceding.

4. The additional copies and documents which may be applied for by these Administrations are paid for, separately, at prime cost.

5. The International Bureau must, besides, hold itself always at the disposal of the members of the Union, for the purpose of furnishing them with any special information they may require upon questions relating to the International Postal Service.

6. The International Bureau makes known demands for the modification or interpretation of the stipulations which govern the Union. It notifies the results of each application, and any modification or resolution adopted is not ex-

mois, au moins, après sa notification.

7. Dans les questions à résoudre par l'assentiment unanime ou par la majorité des administrations de l'Union, celles qui n'ont point fait parvenir leur réponse dans le délai maximum de quatre mois, sont considérées comme s'abstenant.

8. Le Bureau international prépare les travaux des congrès ou conférences. Il pourvoit aux copies et impressions nécessaires, à la rédaction et à la distribution des amendements, procès-verbaux et autres renseignements.

9. Le directeur de ce Bureau assiste aux séances des congrès ou conférences, et prend part aux discussions sans voix délibérative.

10. Il fait sur sa gestion un rapport annuel qui est communiqué à toutes les administrations de l'Union.

11. La langue officielle du Bureau international est la langue française.

XXXI.

Langue.

1. Les feuilles d'avis, tableaux, relevés et autres formules, à l'usage des administrations de l'Union pour leurs relations réciproques, doivent, en règle générale, être rédigés en langue française, à moins que les administrations intéressées n'en disposent autrement par une entente directe.

2. En ce qui concerne la correspondance de service, l'état de choses actuel est maintenu, sauf autre arrangement à intervenir ultérieurement et d'un commun accord entre les administrations intéressées.

XXXII.

Ressort de l'Union.

Sont considérés comme appartenant à l'Union postale universelle:

executive until two months, at least, after its notification.

7. In the questions to be decided by unanimous assent or by the majority of the Union Administrations, those Administrations which have not sent in their reply within the maximum delay of four months are considered as expressing no opinion.

8. The International Bureau prepares the business to be submitted to the Congresses or Conferences. It undertakes the necessary copying and printing, the editing and distribution of amendments, journals of proceedings, and other details.

9. The Director of this Bureau attends the sessions of the Congresses or Conferences, and takes part in the discussions, without the power of voting.

10. There is issued, under his superintendence, an annual report, which is communicated to all the Administrations of the Union.

11. The official language of the International Bureau is the French language.

XXXI.

Language.

1. The letter-bills, tables, statements, and other forms used by the Administrations of the Union in their reciprocal relations must, as a general rule, be drawn up in the French language, unless the Administrations interested arrange otherwise by direct agreement.

2. As regards official correspondence, the present state of things is maintained, unless any other arrangement should subsequently be agreed upon by common consent between the Administrations interested.

XXXII.

Jurisdiction of the Union.

The following are considered as belonging to the Universal Postal Union:

1° L'île de Hélioland, comme assimilée à l'Allemagne, au point de vue postal;

2° La principauté de Lichtenstein, comme relevant de l'administration des postes d'Autriche;

3° L'Islande et les îles Féroë, comme faisant partie du Danemark;

4° Les îles Baléares, les îles Canaries et les possessions espagnoles de la côte septentrionale d'Afrique, comme faisant partie de l'Espagne; la République du Val d'Andorre, les établissements de poste de l'Espagne sur la côte occidentale du Maroc, comme relevant de l'administration des postes espagnoles;

5° L'Algérie comme faisant partie de la France; la principauté de Monaco et les bureaux de poste français établis à Tunis, à Tanger (Maroc) et à Shang-Haï (Chine), comme relevant de l'administration des postes de France; le Cambodge et le Tonkin comme assimilés, quant au service postal, à la colonie française de Cochinchine;

6° Gibraltar, ainsi que Malte et dépendances, comme relevant de l'administration des postes de la Grande-Bretagne;

7° Les bureaux de poste que l'administration de la colonie anglaise de Hong-Kong entretient à Kiung-Schow, Canton, Swatow, Amoy, Fouchou, Ningpo, Shang-Haï et Hankow (Chine), et à Haï-Phung et Hanoi (Tonkin);

8° Les établissements de poste indiens d'Aden, de Mascate, du golfe Persique, de Guadur et de Mandalay, comme relevant de l'administration des postes de l'Inde britannique;

9° La République de Saint-Marin et les bureaux italiens de Tunis et de Tripoli de Barbarie, comme relevant de l'administration des postes d'Italie;

10° Les bureaux de poste que l'administration japonaise a établis à Shang-Haï, Chefoo, Chinkiang, Hankow, Ningpo, Foo-Chow, Newchwang, Kiukiang et Tien-Tsin (Chine), et à Fusampo (Corée);

1st. The Island of Heligoland, as assimilated to Germany, from a postal point of view.

2d. The Principality of Lichtenstein, as subordinate to the Postal Administration of Austria.

3d. Iceland and the Faroe Islands, as forming part of Denmark.

4th. The Balearic Isles, the Canary Islands, and the Spanish possessions on the Northern Coast of Africa, as forming part of Spain; the Republic of Andorra and the Postal establishments of Spain upon the western coast of Morocco, as subordinate to the Spanish Postal Administration.

5th. Algeria, as forming part of France; the Principality of Monaco, and the French post-offices established at Tunis, Tangier (Morocco), and at Shanghai (China), as subordinate to the Postal Administration of France; Cambodia and Tonquin, as assimilated, so far as regards the postal service, to the French colony of Cochin China.

6th. Gibraltar, as well as Malta and its dependencies, as subordinate to the Postal Administration of Great Britain.

7th. The post-offices which the Administration of the English colony of Hong-Kong maintains at Kiung-chow, Canton, Swatow, Amoy, Foo-chow, Ningpo, Shanghai, and Hankow (China), and Haï-Fung and Hanoi (Tonquin).

8th. The Indian postal establishments of Aden, Muscat, Persian Gulf, Guadur, and Mandalay, as subordinate to the Postal Administration of British India.

9th. The Republic of St. Marino, and the Italian offices of Tunis and Tripoli, in Barbary, as subordinate to the Postal Administration of Italy.

10th. The post-offices which the Japanese Administration has established at Shanghai, Chefoo, Chinkiang, Hankow, Ningpo, Foo-Chow, Newchwang, Kiukiang, and Tien-Tsin (China), and of Fusampo (Corea).

11° Madère et les Açores, comme faisant partie du Portugal;

12° Le Grand-Duché de Finlande, comme faisant partie intégrante de l'Empire de Russie.

XXXIII.

Dans l'intervalle qui s'écoule entre les réunions, toute administration des postes d'un pays de l'Union a le droit d'adresser aux autres administrations participantes, par l'intermédiaire du Bureau international, des propositions concernant les dispositions du présent Règlement. Mais, pour devenir exécutoires, ces propositions doivent réunir, savoir:

1° L'unanimité des suffrages, s'il s'agit de la modification des dispositions des articles III, IV, V, XI, XXVI, XXXIII et XXXIV;

2° Les deux tiers des suffrages, s'il s'agit de la modification des dispositions des articles I, II, VIII, X, XIII, XIV, XV, XVI, XVII, XVIII, XIX, XX, XXII, XXIII, XXIV, XXV, XXVII, XXXI et XXXII;

3° La simple majorité absolue, s'il s'agit soit de la modification des dispositions autres que celles indiquées ci-dessus, soit de l'interprétation des diverses dispositions du Règlement.

Les résolutions valables sont consacrées par une simple notification du Bureau international à toutes les administrations de l'Union.

XXXIV.

Durée du Règlement.

Le présent Règlement sera exécutoire à partir du jour de la mise en vigueur de la Convention du 1^{er} juin 1878. Il aura la même durée que cette Convention, à moins qu'il ne soit renouvelé d'un commun accord entre les parties intéressées.

11th. Madeira and the Azores, as forming part of Portugal.

12th. The Grand Duchy of Finland, as forming an integral part of the Empire of Russia.

XXXIII.

In the interval which elapses between the meetings, every Postal Administration of a country of the Union has the right to address to the other participating Administrations, through the intermediary of the International Bureau, proposals in regard to the stipulations of the present Regulations. But to become binding, these proposals must obtain, as follows:

1st. Unanimity of votes, if they relate to the modification of the stipulations of the Articles III, IV, V, XI, XXVI, XXXIII, and XXXIV.

2d. Two-thirds of the votes, if they relate to the modification of the stipulations of the Articles I, II, VIII, X, XIII, XIV, XV, XVI, XVII, XVIII, XIX, XX, XXII, XXIII, XXIV, XXV, XXVII, XXXI, and XXXII.

3d. Simply an absolute majority, if they relate to the modification of stipulations other than those above mentioned, or to the interpretation of the various stipulations of the Regulations.

The resolutions adopted in due form are sanctioned by a simple notification from the International Bureau to all the Administrations of the Union.

XXXIV.

Duration of the Regulations.

The present Regulations shall be put into execution from the day on which the Convention of the 1st June, 1878, comes into force. They shall have the same duration as that Convention, unless they be renewed by mutual agreement between the parties interested.

Fait à Paris, le 1^{er} juin 1878.

Done at Paris, the 1st June, 1878.

Pour les États-Unis de l'Amérique du Nord	{ JAS. N. TYNER. JOSEPH H. BLACKFAN. DR. STEPHAN.
Pour l'Allemagne	{ GÜNTHER. SACHSE.
Pour la République Argentine	CÁRLOS CALVO.
Pour l'Autriche	DEWÉZ.
Pour la Hongrie	GERVAY.
Pour la Belgique	{ J. VINCHENT. F. GIFE.
Pour le Brésil	VICOMTE D'ITAJUBA.
Pour le Danemark et les Colonies danoises	SCHOU.
Pour l'Égypte	A. CAILLARD.
Pour l'Espagne et les Colonies espagnoles	{ G. CRUZADA VILLAAMIL. EMILIO C. DE NAVASQÜES. LÉON SAY.
Pour la France	{ AD. COCHERY. A. BESNIER.
Pour les Colonies françaises	E. ROY.
Pour la Grande-Bretagne et diverses Colonies anglaises	{ F. O. ADAMS. WM. JAS. PAGE. A. MACLEAN.
Pour l'Inde britannique	FRED. R. HOGG.
Pour le Canada	{ F. O. ADAMS. WM. JAS. PAGE. A. MACLEAN.
Pour la Grèce	{ N. P. DELYANNI. A. MANSOLAS.
Pour l'Italie	G. B. TANTESIO.
Pour le Japon	{ NAONOBOU SAMESHIMA. SAML. M. BRYAN.
Pour le Luxembourg	V. DE ROEBE.
Pour le Mexique	G. BARREDA.
Pour le Monténégro	DEWÉZ.
Pour la Norvège	CHR. HEFTY.
Pour les Pays-Bas et les Colonies néerlandaises	{ HOFSTEDE BARON SWEERTS DE LANDAS- WYBORGH.
Pour le Pérou	JUAN M. DE GOYENECHÉ.
Pour la Perse	
Pour le Portugal et les Colonies portugaises	{ GUELHERMENO AUGUSTO DE BARROS.
Pour la Roumanie	C. F. ROBESCO.
Pour la Russie	{ BARON VELHO. GEORGES POGGENPOHL.
Pour le Salvador	J. M. TORRES-CAÏCEDO.
Pour la Serbie	MLADEN F. RADOYCOVITCH.
Pour la Suède	WM. ROOS.
Pour la Suisse	{ DR. KEEN. ED. HÖHN.
Pour la Turquie	B. COUYOUMGLIAN.

ANNEXES.

ANNEXES.

Administration des Postes
d

A.

Correspondance avec l'Office
d

FEUILLE D'AVIS.

Timbre du bureau expéditeur.

Timbre du bureau destinataire.

Dépêche (
Départ du
Arrivée le

* Envoi) du bureau d'échange d
187-. à h. m. du
187-. à h. m. du

pour le bureau d'échange d

I. ENVOIS RECOMMANDÉS.

Numéros d'ordre.	Timbre d'origine.	Noms des destinataires et lieux de destination ou numéros du registre des bureaux d'origine.	Observations.
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
Recommandations d'office.			

ANNEXES.

Postal Administration
of _____.

A.

Correspondence with the Office
of _____.

LETTER-BILL.

(Stamp of dispatching office.)

(Stamp of receiving office.)

○ ○
Mail (— • Envoi) from the exchange office of — for the exchange office of —.
Departure of —, 187—, at — o'clock.
Arrival of —, 187—, at — o'clock.

I. REGISTERED ARTICLES.

Numbers of order.	Stamp of origin.	Names of the addressees and places of destination, or registered numbers of the offices of origin.	Observations.
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

OFFICIAL REGISTRATIONS.

ANNEXES.

II. CLOSED MAILS.

Office of origin.	Office of destination.	Number of closed mails.	Observations.

Clerk of dispatching exchange office:

Clerk of receiving exchange office:

ANNEXES.

Administration des Postes
d

B.

Correspondance avec l'Office
d

Timbre du bureau expéditeur.

Timbre du bureau destinataire.



BULLETIN DE VÉRIFICATION

pour la rectification et la constatation des erreurs et irrégularités de toute nature reconnues dans la dépêche
du bureau d'échange d par le bureau d'échange d

* expédition du 187 , à h. m. du .

ERREURS OU IRRÉGULARITÉS DIVERSES.

(Manque de la dépêche, manque d'objets recommandés ou de la feuille d'avis, dépêche spoliée, lacérée ou en mauvais état, etc.)

ERREURS DE COMPTE DANS LA STATISTIQUE.

Numéros distinctifs des tableaux erronés.	Désignation des correspondances ou dépêches sur lesquelles porte l'erreur.	Déclaration du bureau d'échange expéditeur.	Vérification du bureau d'échange destinataire.	Causes de la rectification.

A , le 187 .

Les employés du bureau d'échange destinataire,

A , le 187 .

Vu et accepté:
Le chef du bureau d'échange expéditeur,

ANNEXES.

Postal Administration
of ———.

B.

Correspondence with the
Office of ———.

(Stamp of dispatching office.)

(Stamp of receiving office.)

BULLETIN OF VERIFICATION

for the correction and the statement of the errors and irregularities of all kinds discovered in the mail from
the exchange office of ——— for the exchange office of ———.

Dispatch of the ———, 187—, at ——— o'clock.

ERRORS OR VARIOUS IRREGULARITIES.

(Missing mail; missing registered articles, or letter-bill; robbed, torn, or injured mail, &c.)

ERRORS OF ACCOUNT IN THE STATISTICS.

Distinctive numbers of the erroneous tables.	Description of the correspondence, or mails, in which the error occurs.	Statement of the dispatching exchange office.	Verification of the receiving exchange office.	Causes of rectification.

At ———, the ———, 187—.
Clerks of the receiving exchange office:

At ———, the ———, 187—.
Seen and accepted:
Chief of the dispatching exchange office:

ANNEXES.

Administration des Postes
d

C.

TABLEAU

indiquant les conditions auxquelles peuvent être échangées à découvert, entre les Administrations de l'Union postale et l'Administration d , les lettres et les autres objets de correspondance originaires ou à destination des pays étrangers auxquels cette dernière Administration sert d'intermédiaire.

ANNEXES.

TABLEAU C,

indiquant les conditions auxquelles peuvent être échangées à découvert, entre les administrations de l'Union postale et l'Administration des Lettres et les autres objets de correspondance originaires ou à destination des pays étrangers auxquels cette dernière Administration sert d'intermédiaire.

1 Numéros.	2 Pays de destination ou d'origine.	Lettres ordinaires.						Lettres recommandées.				Journaux ou au- tres imprimés.		Échantillons de marchandises.		Observations.
		3 Conditions de l'af- franchissement.	4 Limites de l'af- franchissement.	5 Poids en grammes d'une lettre simple.	6 BONIFICATIONS. (Port étranger.)	7 Lettres non af- franchies de l'étranger.	8 DÉBOURS. (Port étranger.)	8 Poids en grammes d'une lettre simple.	9 Droit fixe de re- comman- dation.	10 Port.	11 Poids en grammes d'un paquet simple.	12 BONIFICATIONS. (Port étranger.)	13 Poids en grammes d'un paquet simple.	14 BONIFICATIONS. (Port étranger.)		
1	2														15	

ANNEXES.

*Postal Administration
of . . .*

TABLE

showing the conditions under which there may be exchanged in open mails, between the Administrations of the Postal Union and the Administration of ———, letters and other articles of correspondence originating in or addressed to the foreign countries to which the latter Administration serves as intermediary.

ANNEXES.

TABLE C,

Showing the conditions under which there may be exchanged in open mails, between the Administrations of the Postal Union and the Administration of _____, letters and other articles of correspondence originating in or addressed to the foreign countries to which the latter Administration serves as intermediary.

Numbers.	Countries of destination or of origin.	Ordinary letters.						Registered letters.		Newspapers and other prints.		Samples of merchandise.			Observations.
		Conditions of prepayment.	Limit of prepayment.	Weight in grammes of a single letter.	Prepaid letters for abroad.	Unpaid letters from abroad.	Weight in grammes of a single letter.	Fixed registration fee.	Credits for conveyance outside of the Union.	Postage.	Weight in grammes of a single packet.	Credits (foreign postage).	Weight in grammes of a single packet.	Credits (foreign postage).	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
					CREDITS (foreign postage).	CLAIMS (foreign postage).									

ANNEXES.

flac expéditeur :

D.

Office destinataire réexpéditeur :

TRANSIT À DÉCOUVERT.

(Dans le ressort de l'Union.)

**Tableau indiquant les prix de transit pour les correspondances transmises à découvert par l'office des
postes d à l'office des postes d**

Numéros d'ordre.	Pays de destination ou de sortie.	Prix de transit par kilogramme.			Observations.	
		Letters et cartes-pos- tales.	Autres ob- jets.			Pour le parcours par
1	2	3	4		5	6
		c.	fr.	c.		

ANNEXES.

Dispatching Office

D.

Receiving reforwarding Offer

TRANSIT IN OPEN MAIL.

(Within the limits of the Union.)

TABLE

showing the rates of transit for the correspondence transmitted in open mail by the post-office of —
the post-office of —.

[illegible]

ANNEXES.

Office expéditeur :

E.

Office destinataire réexpéditeur :

TRANSIT À DÉCOUVERT.

Dépêche du bureau d'échange d

pour le bureau d'échange d
h. m. du

expédiée le 187, à

I. TRANSIT DANS L'UNION À LA CHARGE DE L'OFFICE EXPÉDITEUR.

(Correspondances de toute nature de l'Union pour l'Union, et correspondances de l'Union pour les pays étrangers et vice versa.)

Numéros d'ordre.	Pays de destination ou de sortie.	Prix de transit par kilogr.		Déclaration du bureau d'échange expéditeur.		Vérification du bureau d'échange destinataire.	
		Lettres et cartes-postales.	Autres objets.	Lettres et cartes-postales.	Autres objets.	Lettres et cartes-postales.	Autres objets.
		<i>fr.</i>	<i>c.</i>	<i>fr.</i>	<i>c.</i>	<i>Grammes.</i>	<i>Grammes.</i>

II. PORT ÉTRANGER À LA CHARGE DE L'OFFICE EXPÉDITEUR.

Correspondances affranchies pour les pays étrangers à l'Union.)

	Déclaration du bureau d'échange expéditeur.		Vérification du bureau d'échange destinataire.	
	fr.	c.	fr.	c.
Montant total des taxes étrangères..				

III. PORT ÉTRANGER À LA CHARGE DE L'OFFICE DESTINATAIRE.

(Correspondances non affranchies provenant des
pays étrangers à l'Union y compris les corre-
spondances réexpédiées et rebutées.)

	Déclaration du bureau d'échange expéditeur.		Vérification du bureau d'échange destinataire.	
	fr.	c.	fr.	c.
Montant total des taxes étrangères...				

ANNEXES.

Dispatching office

E.

Receiving reforming office

OPEN MAIL TRANSIT.

MAIL

from the exchange office of — for the exchange office of —. Sent the —, 187, at —
o'clock.

I. TRANSIT IN THE UNION AT THE CHARGE OF THE DISPATCHING OFFICE.

(Correspondence of every kind from the Union for the Union, and correspondence from the Union for foreign countries, and *vice versa*.)

[illegible]

II. FOREIGN POSTAGE AT THE CHARGE OF THE DISPATCHING OFFICE.

(Prepaid correspondence for countries foreign to the Union.)

	Statement of the dispatching exchange office.		Verification of the receiving exchange office.	
	Fr.	C.	Fr.	C.
Total amount of foreign charges.				

III. FOREIGN POSTAGE AT THE CHARGE OF THE RECEIVING OFFICE.

(Unpaid correspondence from countries foreign to the Union, including the reforwarded and undelivered correspondence.)

	Statement of the dispatching exchange office.		Verification of the receiving exchange office.	
	Fr.	C.	Fr.	C.
Total amount of foreign charges.				

ANNEXES.

Office expéditeur:

F.

Office destinataire

TRANSIT EN DÉPÊCHES CLOES.

Dépêches du bureau d'échange de pour le bureau d'échange de expédites par l'intermédiaire de

[illegible]

A . le 187 .
Le chef du bureau d'échange destinataire,

A , le 187 .
Vu et accepté:
Le chef du bureau d'échange exp^diteur,

ANNEXES.

Administration des Postes
d

G.

Bureau
d

RENSEIGNEMENTS À FOURNIR PAR L'EXPÉDITEUR, EN CAS DE RÉCLAMATION
D'UN OBJET DE CORRESPONDANCE ORDINAIRE NON PARVENU.

Demandes.	Réponses.
Quelle était l'adresse de l'envoi?	
Quelle est l'adresse exacte du destinataire?	
L'envoi était-il très-volumineux?	
Que renfermait-il? (signalement aussi exact et complet que possible.)	
Était-il affranchi?	
Dans le cas de l'affirmative, quelle était la valeur des timbres-poste y apposés?	
L'affranchissement a-t-il été opéré par les soins d'un agent des postes?	
Date et heure du dépôt à la poste.	
Le dépôt a-t-il eu lieu au guichet ou à la boîte? Dans ce dernier cas, à quelle boîte?	
Le dépôt a-t-il été effectué par l'expéditeur lui-même ou par un tiers? Dans ce dernier cas, par quelle personne?	
Nom et domicile de l'expéditeur.	
<p>N. B.—En cas de recherches fructueuses, à qui, de l'expéditeur ou du destinataire, doit-on faire parvenir l'envoi réclamé?</p>	

ANNEXES.

Administration des Postes
d

G.

Bureau
dRENSEIGNEMENTS À FOURNIR PAR LE DESTINATAIRE, EN CAS DE RÉCLAMATION
D'UN OBJET DE CORRESPONDANCE ORDINAIRE NON PARVENU.

Demandes.	Réponses.
L'envoi est-il parvenu entre les mains du destinataire?	
Les correspondances sont-elles d'ordinaire retirées au bureau de poste ou distribuées à domicile?	
À qui sont-elles confiées dans le premier cas?	
Dans le second, sont-elles remises directement au destinataire ou à une personne attachée à son service; ou bien encore, sont-elles déposées dans une boîte particulière?—Le cas échéant, cette boîte est-elle bien fermée et régulièrement levée?	
La perte de correspondances s'est-elle déjà produite souvent, et, dans le cas de l'affirmative, indiquer d'où provenaient les correspondances perdues.	
Nom et domicile du destinataire.	

N. B.—En cas de recherches fructueuses, à qui, de l'envoyeur ou du destinataire, doit-on faire parvenir l'envoi réclamé?

ANNEXES.

Postal Administration
of _____.

G.

Office
of _____.

PARTICULARS TO BE FURNISHED BY THE SENDER IN CASE OF A CLAIM FOR AN ORDINARY ARTICLE OF CORRESPONDENCE WHICH HAS NOT ARRIVED.

Questions.	Answers.
How was the article addressed ?	
What is the exact address of the addressee ?	
Was the article very large ?	
What did it contain ? (Give details as exact and complete as possible.)	
Was it prepaid ?	
If so, what was the value of the postage-stamps affixed ?	
Was the prepayment made through a postal official ?	
Date and hour of mailing.	
Was it mailed at the office or the box ? In the latter case, which box ?	
Was it mailed by the sender himself or by some other person ? In the latter case, by whom ?	
Name and residence of sender.	
N. B.—In case of successful inquiry, to whom—the sender or the addressee—should the article be returned ?	

ANNEXES.

Postal Administration
of _____.

G.

Office
of _____PARTICULARS TO BE FURNISHED BY THE ADDRESSEE IN CASE OF CLAIM FOR
AN ORDINARY ARTICLE OF CORRESPONDENCE WHICH HAS NOT ARRIVED.

Questions.	Answers.
Did the article come into the hands of the addressee?	
Is the correspondence usually taken at the post-office or delivered at the house?	
In the first case, to whom is it intrusted?	
In the second, is it delivered directly to the addressee or to a person in his service; or is it deposited in a special box? If so, is the box well fastened and regularly opened?	
Has correspondence often been lost? And if so, mention whence the lost correspondence has come.	
Name and residence of the addressee.	
N. B.—In case of successful inquiry, to whom—the sender or the addressee—should the article be returned?	

OCEAN MAILS.

Statement showing the amounts recognized in payment of ocean mail transportation performed during the fiscal year ended June 30, 1878.

Trans-Atlantic mails:

By Cunard Line, 52 trips from New York.....	\$32,890 20	
By Cunard Line, 31 trips from Boston.....	1,376 33	
		\$34,266 53
By Hamburg Line, 52 trips from New York	29,647 69	
By Liverpool and Great Western Line, 44 trips from New York.....	26,184 54	
By North German Lloyd Line, 51 trips from New York.....	\$21,218 25	
21 trips from Baltimore	16 86	
		21,235 11
By White Star Line, 42 trips from New York	18,721 48	
By Inman Line, 37 trips from New York	15,507 69	
By Anchor Line, 50 trips from New York	1,863 88	
By Canadian Line, 52 trips	1,692 79	
By American Line, 44 trips from Philadelphia	1,332 12	
By General Trans-Atlantic (French) Line	2,209 30	
		\$152,661 13

Trans-Pacific mails:

To Japan and Hong-Kong, China:		
By Pacific Mail Line	\$1,108 51	
By Occidental and Oriental Line	1,204 86	
		2,313 37
To Shanghai, China:		
By Pacific Mail Line	145 10	
By Occidental and Oriental Line	166 56	
		311 66
To New South Wales, other Australian Colonies, New Zealand, Fiji Islands, and the Sandwich Islands, by Pacific Mail Line.....	6,764 22	
		9,389 25

Miscellaneous:

To and from the Isthmus of Panama, Central America, and the South Pacific:		
Outward mails	\$11,946 50	
Inward mails	7,290 51	
		19,237 01
To Mexico	4,658 50	
To Cuba	5,954 07	
To and from other West India Islands:		
Outward mail	\$2,472 56	
Inward mails	615 82	
		3,088 38
To Brazil	1,449 01	
From the Argentine Republic and Uruguay	63 06	
To Venezuela	631 63	
To Canada	144 11	
		35,225 77
Total		\$197,276 15

DIPLOMATIC ACT.

The Swiss Postal Administration and the British Post Office having agreed to admit into the General Postal Union:

1st, the British Colony of Newfoundland, upon the same conditions as Canada has been, that is to say, upon the conditions pure and simple of the treaty of Berne of the 9th October 1874, and

2nd, the British Colonies of the Gold Coast, Senegambia, Lagos, Sierra

Leone, Falkland Islands, and British Honduras, upon the same conditions as have been the French Colonies and British India, that is to say, upon the conditions of the arrangement signed at Berne the 27th of January 1876, the undersigned, duly authorized for that purpose, establish by the present diplomatic act, the definitive adhesion from the 1st of January 1879, of the Government of Her British Majesty for its Colonies of Newfoundland, the Gold Coast, Senegambia, Lagos, Sierra Leone, Falkland Islands, and British Honduras, to the stipulations of the treaty concerning the formation of a General Postal Union, concluded at Berne the 9th October 1874, as well as to the stipulations of the regulations of detail for the execution of the said Treaty.

Made in duplicate at Berne, the 9th September 1878.

For the Swiss Federal Council, in the name of the members of the Union:

The President of the Confederation,

SCHENK.

For the Government of Her British Majesty:

Her Minister Resident near the Swiss Confederation,

HORACE RUMBOLD.

DIPLOMATIC ACT.

The Administration General of Swiss Posts having proposed by circulars of the 10th and 24th June 1878, to all the members of the General Postal Union, to admit into the Union the Republic of Peru upon the same conditions as have been the French Colonies and British India, that is to say, upon the conditions of the arrangement signed at Berne, January 27, 1876, and no objection to this proposition having been presented in the delay of six weeks prescribed by the Article 17, paragraph 6 of the Treaty of Berne of October 9, 1874, the undersigned, duly authorized for that purpose, establish by the present diplomatic act the definitive adhesion, from the 1st of October 1878, of the Peruvian Government to the stipulations of the Treaty concerning the formation of a General Postal Union, concluded at Berne, October 9, 1874, as well as to the stipulations of the regulations of detail for the execution of the said Treaty.

Done in duplicate at Paris, September 24, 1878.

For the Swiss Federal Council, in the name of the members of the Union:

The Envoy Extraordinary and Minister Plenipotentiary of Switzerland in France.

[L. S.]

KERN.

For the Government of the Republic of Peru:

Its Envoy Extraordinary and Minister Plenipotentiary at Paris,

[L. S.]

JUAN M. DE GOYENECHÉ.

DIPLOMATIC ACT.

The Swiss Post Department having proposed by circular of 23 April 1876, to all the members of the General Postal Union, to admit into the Union the Argentine Republic upon the same conditions as have been

the French Colonies and British India, that is to say, upon the conditions of the arrangement signed at Berne, January 27, 1876, and no objection to this proposition having been presented within the delay of six weeks prescribed, by Article 17, paragraph 6 of the Treaty of Berne of October 9, 1874, the undersigned, duly authorized to that effect, establish by the present diplomatic act the definitive adhesion, from the 1st of September 1877, of the Government of the Argentine Republic to the stipulations of the Treaty concerning the formation of a General Postal Union, concluded at Berne the 9th of October 1874, as well as to the stipulations of the regulations of detail for the execution of the said Treaty.

Done in duplicate at Paris, the 16th June 1877, (sixteenth June, one thousand eight hundred seventy seven).

For the Federal Swiss Council, in the name of the members of the Union :

The Envoy Extraordinary and Minister Plenipotentiary of the Swiss Confederation near the French Republic,

[L. S.]

KERN.

For the Government of the Argentine Republic :

Its Envoy Extraordinary and Minister Plenipotentiary to France and to Spain,

[L. S.]

M. BALCARCE.

DIPLOMATIC ACT.

By circular of 11 April 1876, the Swiss Postal Administration proposed to the other members of the General Postal Union to receive Canada upon the conditions of the Treaty of Berne of 9 October 1874.

By their letters of May 13, 1878, the contents of which are identical, the Postal Administrations of France and Spain have declared that they withdraw the objections they had made to the admission of Canada, within the term of 6 weeks stipulated by paragraph 6 of Article 17 of the aforesaid treaty.

In view of the preceding circumstances, the undersigned, duly authorized for that purpose, establish by the present diplomatic act, the definitive adhesion, from July 1, 1878, of the British Government, for Canada, to the stipulations of the treaty concerning the formation of a General Postal Union, concluded at Berne, October 9, 1874, as well as to the definitive stipulations of the regulations of detail for the execution of the said treaty.

Done at Berne, May 28, 1878.

For the Swiss Federal Council, in the name of the members of the Union :

The President of the Confederation,

SCHENK.

For the Government of Canada :

The Minister Resident of Her British Majesty near the Swiss Confederation,

HORACE RUMBOLD.

AMENDED ARTICLE, TO REPLACE ARTICLE THREE OF THE POSTAL CONVENTION BETWEEN THE UNITED STATES OF AMERICA AND THE COLONIAL GOVERNMENT OF NEW ZEALAND, SIGNED AT WELLINGTON AUGUST 3RD, 1870, AND AT WASHINGTON OCTOBER 5TH, 1870.

The undersigned, being thereunto duly authorized by their respective Governments, have agreed to replace article 3 of the Postal Convention of August 3, 1870, by the following article:

ARTICLE 3.

No accounts shall be kept between the Post Departments of the two countries upon the international correspondence, written or printed, exchanged between them, but each country shall retain to its own use the postage which it collects.

The single rate of international letter-postage shall be 12 cents in the United States, and 6 pence in New Zealand, on each letter weighing half an ounce or less, and an additional rate of 12 cents (6 pence) for each single weight of half an ounce or fraction thereof, which shall in all cases, be prepaid at least one single rate, by means of postage-stamps, at the office of mailing in either country. Letters unpaid, or prepaid less than one full rate of postage shall not be forwarded, but insufficiently paid letters on which a single rate or more has been prepaid, shall be forwarded, charged with the deficient postage to be collected and retained by the Post Department of the country of destination.

The United States Post Office shall levy and collect to its own use, on newspapers addressed to New Zealand, a postage charge of 2 cents; and on all other articles of printed matter, patterns and samples of merchandise addressed to New Zealand, a postage charge of 4 cents per each weight of four ounces or fraction of four ounces.

The Post Office of New Zealand shall levy and collect to its own use, on newspapers and other articles of printed matter, patterns and samples of merchandise addressed to the United States, the regular rates of domestic postage chargeable thereon by the laws and regulations of the Colony of New Zealand.

Letters, newspapers, and other articles of printed matter, patterns and samples of merchandise, fully prepaid, which may be received in either country from the other, shall be delivered free of all charge whatever.

Newspapers, and all other kinds of printed matter and patterns and samples of merchandise are to be subject to the laws and regulations of each country respectively, in regard to their liability to be rated with letter-postage when containing written matter, or for any other cause specified in said laws and regulations, as well as in regard to their liability to customs duty under the revenue laws.

The provisions of this amended article shall be carried into operation on the first of December, A. D. 1877.

Done in duplicate and signed at Washington the twenty-eighth day of August, 1877, and at Wellington the eleventh day of October, 1877.

[SEAL.]

D. M. KEY,
Postmaster General of the United States.
GEO. M. McLEAN,
Postmaster General of New Zealand.

I hereby approve the foregoing amended article, and in testimony

thereof I have caused the seal of the United States to be affixed hereto.

[SEAL.]

R. B. HAYES.

By the President:

F. W. SEWARD,

Acting Secretary of State.

WASHINGTON, August 28, 1877.

POSTAL CONVENTION BETWEEN THE UNITED STATES OF AMERICA AND
THE COLONIAL GOVERNMENT OF VICTORIA.

The undersigned, David M. Key, Postmaster-General of the United States of America, by virtue of the powers vested in him by law, and Mr. George Collins Levey, specially empowered for that purpose by the Postmaster-General of the Colony of Victoria, have agreed upon the following articles, subject to approval by the President of the United States, and ratification by the Government of the Colony of Victoria, viz:

ARTICLE I.

There shall be an exchange of correspondence between the United States of America and the Colony of Victoria by means of the direct line of colonial mail packets plying to and from San Francisco, as well as by such other means of direct mail-steamship transportation between the United States and Victoria as shall hereafter be established with the approval of the respective Post Departments of the two countries, comprising letters, newspapers, printed matter of every kind, and patterns and samples of merchandise, originating in either country and addressed to and deliverable in the other country, as well as correspondence in closed mails originating in Victoria and destined for foreign countries by way of the United States.

ARTICLE II.

The post-office of San Francisco shall be the United States office of exchange, and Melbourne the office of exchange of the Colony of Victoria for all mails transmitted under this arrangement.

ARTICLE III.

No accounts shall be kept between the Post Departments of the two countries upon the international correspondence, written or printed, exchanged between them, but each country shall retain to its own use the postage which it collects.

The single rate of international letter postage shall be twelve cents in the United States, and sixpence in Victoria, on each letter weighing half an ounce or less, and an additional rate of twelve cents (sixpence) for each additional weight of half an ounce or fraction thereof, which shall in all cases be prepaid at least one single rate by means of postage-stamps at the office of mailing in either country. Letters unpaid, or prepaid less than one full rate of postage, shall not be forwarded, but insufficiently-paid letters, on which a single rate or more has been prepaid, shall be forwarded, charged with the deficient postage, to be collected and retained by the Post Department of the country of destination.

The United States post office shall levy and collect to its own use on

newspapers addressed to Victoria a postage charge of two cents, and on all other articles of printed matter, patterns and samples of merchandise addressed to Victoria, a postage charge of four cents per each weight of four ounces or fraction of four ounces.

The post office of Victoria shall levy and collect to its own use on newspapers and other articles of printed matter, patterns and samples of merchandise addressed to the United States, the regular rates of domestic postage chargeable thereon by the laws and regulations of the Colony of Victoria.

Letters, newspapers, and other articles of printed matter, patterns and samples of merchandise, fully prepaid, which may be received in either country from the other, shall be delivered free of all charge whatever.

Newspapers and all other kinds of printed matter, patterns and samples of merchandise, are to be subject to the laws and regulations of each country, respectively, in regard to their liability to be rated with letter postage when containing written matter, or for any other cause specified in said laws and regulations, as well as in regard to their liability to customs duty under the revenue laws.

ARTICLE IV.

The United States office engages to grant the transit through the United States, as well as the conveyance by United States mail packets, of the correspondence in closed mails which the Victoria post office may desire to transmit via the United States to British Columbia, the British North American Provinces, the West Indies, Mexico, Central and South America, and at the following rates of United States transit postage, viz:

For the United States territorial transit of closed mails from Victoria for Mexico, British Columbia, Canada, or other British North American Provinces, when transmitted entirely by land routes, six cents per ounce for letter mails, and sixteen cents per pound for all kinds of printed matter.

For the United States territorial and sea transit of closed mails from Victoria for British Columbia or other British North American Provinces, Mexico, Central and South America, or the West India Islands, when transmitted from the United States by sea, twenty-five cents per ounce for letter mails, and twenty cents per pound for all kinds of printed matter.

The Victoria post office shall render an account to the United States post office, upon letter bills to accompany each mail, of the weight of the letters, and also of the printed and other matter contained in such closed mails, forwarded to the United States for transmission to either of the above-named countries and colonies; and the accounts arising between the two offices on this class of correspondence shall be stated, adjusted, and settled quarterly, and the amounts of the United States transit charges found due on such closed mails shall be promptly paid over by the Victoria post office to the United States post office in such manner as the Postmaster General of the United States shall prescribe.

ARTICLE V.

Prepaid letters from foreign countries received in and forwarded from the United States to Victoria shall be delivered in said colony free of all charges whatsoever, and letters received in Victoria from the United States addressed to other colonies of Australia will be forwarded to destination, subject to the same conditions as are applicable to correspondence originating in Victoria and addressed to those colonies.

ARTICLE VI.

The two Post Departments may, by mutual agreement, provide for the transmission of registered articles in the mails exchanged between the two countries.

The register fee for each article shall be ten cents in the United States and sixpence in Victoria.

ARTICLE VII.

The two Post Departments shall settle by agreement between them all measures of detail and arrangement required to carry this Convention into execution, and may modify the same in like manner, from time to time, as the exigencies of the service may require.

ARTICLE VIII.

Every fully prepaid letter dispatched from one country to the other shall be plainly stamped with the words "paid all," in *red ink*, on the right-hand upper corner of the address, in addition to the date-stamp of the office at which it was posted; and on insufficiently paid letters the amount of the deficient postage shall be inscribed in *black ink*.

ARTICLE IX.

Dead letters, which cannot be delivered from whatever cause, shall be mutually returned, without charge, monthly, or as frequently as the regulations of the respective offices will permit.

ARTICLE X.

This Convention shall come into operation on the first day of July, 1878, and shall be terminable at any time on a notice, by either office, of six months.

Done in duplicate and signed in Washington, the twenty-eighth day of January, in the year of our Lord one thousand eight hundred and seventy-eight.

[SEAL.]

D. M. KEY,
Postmaster General of the United States.

GEORGE COLLINS LEVEY.

I hereby approve the foregoing convention, and in testimony thereof I have caused the seal of the United States to be affixed.

[SEAL.]

R. B. HAYES.

By the President:

WM. M. EVARTS,
Secretary of State.

WASHINGTON, *January 28, 1878.*

I hereby approve of the foregoing Postal Convention, and have caused to be affixed hereto the seal of the Colony of Victoria.

[SEAL.]

G. F. BOWEN,
Governor.

GRAHAM BERRY,
Chief Secretary.

MELBOURNE, *March 26, 1878.*

ANNUAL REPORT
OF THE
AUDITOR OF THE TREASURY
FOR THE
POST-OFFICE DEPARTMENT.

1878.

REPORT

OF THE

AUDITOR OF THE POST-OFFICE DEPARTMENT.

OFFICE OF THE AUDITOR OF THE TREASURY
FOR THE POST-OFFICE DEPARTMENT,
October 29, 1878.

SIR: I have the honor to submit the following annual report of the receipts and expenditures of the Post-Office Department, together with the operations of this office in connection therewith, for the fiscal year ended June 30, 1878.

COLLECTION OF POST-OFFICE REVENUES.

The number of post-offices in operation during the year was 39,490, which are classified, under the regulations adopted for the government of the department, chapter 25, sections 352 to 368 inclusive, as follows: Special offices, depositing-offices, depository and draft offices, and collection-offices.

The following-named offices are denominated depositories or draft-offices, and are required by the Postmaster-General to receive and retain, subject to the drafts of the department, the funds of certain adjacent offices as well as the revenues of their own, viz:

Adrian, Mich., J. H. Fee.
Albany, N. Y., W. H. Craig.
Albia, Iowa, V. Mendell.
Atlanta, Ga., Benjamin Conley.
Auburn, N. Y., N. P. Clark.
Augusta, Me., H. H. Hamlin.
Austin, Tex., H. B. Kinney.
Bangor, Me., A. B. Farnham.
Batavia, N. Y., William Tyrrell.
Bay City, Mich., F. W. Dunham.
Binghamton, N. Y., E. B. Stephens.
Burlington, Vt., B. J. Derby.
Charleston, Ill., G. M. Mitchell.
Charleston, S. C., B. A. Boseman.
Cleveland, Ohio, N. B. Sherwin.
Columbus, Ohio, A. D. Rodgers.
Concord, N. H., J. E. Larkin.
Decorah, Iowa, A. K. Bailey.
Denver, Colo., E. C. Sumner.
Des Moines, Iowa, J. S. Clarkson.
Detroit, Mich., J. H. Kapler.
Dubuque, Iowa, G. L. Torbert.
East Saginaw, Mich., T. Saylor.
Elmira, N. Y., D. F. Pickering.
Evansville, Ind., F. M. Thayer.
Fort Dodge, Iowa, N. M. Page.
Fort Wayne, Ind., F. W. Keil.
Grand Rapids, Mich., P. R. L. Pierce.
Harrisburg, Pa., M. W. McAlarney.
Hartford, Conn., J. H. Burnham.
Houghton, Mich., F. A. Douglass.
Houston, Tex., T. H. Sanlon.

Huntsville, Ala., J. D. Sibley.
Indianapolis, Ind., W. R. Holloway.
Iowa City, Iowa, Benjamin Owen.
Jacksonville, Fla., H. Jay.
Jamestown, N. Y., A. M. Clark.
Kalamazoo, Mich., L. B. Kendall.
Keene, N. H., A. Smith.
Keokuk, Iowa, J. C. Parrott.
Knoxville, Tenn., William Rule.
Lansing, Mich., S. D. Bingham.
Leavenworth, Kans., D. R. Anthony.
Lexington, Ky., H. K. Milward.
Lima, Ohio, W. P. Waldorf.
Louisville, Ky., V. C. Thompson.
Madison, Wis., E. W. Keyes.
Malone, N. Y., J. J. Seaver.
Marquette, Mich., S. M. Billings.
Marshalltown, Iowa, E. N. Chapin.
Meadville, Pa., J. F. Morris.
Memphis, Tenn., R. A. Thompson.
Milwaukee, Wis., H. C. Payne.
Mobile, Ala., M. D. Wickersham.
Montgomery, Ala., J. J. Martin.
Montpelier, Vt., J. W. Clark.
Mount Pleasant, Iowa, G. W. McAdam.
Nashville, Tenn., W. P. Jones.
Newark, N. J., W. Ward.
New Bedford, Mass., T. Coggeshall.
New Haven, Conn., N. D. Sperry.
Norwich, N. Y., J. K. Spaulding.
Ogdensburg, N. Y., R. G. Pettibone.
Olean, N. Y., M. B. Forbes.

Omaha, Nebr., F. F. Hall.
 Peoria, Ill., J. S. Stevens.
 Pittsburgh, Pa., G. H. Anderson.
 Plattsburg, N. Y., H. S. Ransom.
 Portland, Me., C. W. Goddard.
 Portsmouth, N. H., E. G. Pierce, jr.
 Portsmouth, Ohio, F. C. Gibbs.
 Providence, R. I., C. R. Brayton.
 Raleigh, N. C., W. W. Holden.
 Richmond, Va., William W. Forbes.
 Rochester, N. Y., D. T. Hunt.
 Rutland Vt., A. H. Tuttle.
 Saint Albans, Vt., B. D. Hopkins.
 Saint Johnsbury, Vt., C. P. Carpenter (2d).
 Saint Paul, Minn., David Day.
 Sandusky, Ohio, J. M. Boalt.
 Savannah, Ga., L. McLaws.
 Scranton, Pa., J. A. Scranton.

Springfield, Ill., D. L. Phillips.
 Springfield, Mass., H. C. Lee.
 Steubenville, Ohio, F. O'Neal.
 Syracuse, N. Y., A. C. Chace.
 Taunton, Mass., E. E. Fuller.
 Terre Haute, Ind., N. Filbeck.
 Towanda, Pa., S. W. Alvord.
 Urbana, Ohio, W. A. Brand.
 Utica, N. Y., C. H. Hopkins.
 Watertown, N. Y., W. G. Williams.
 Wellsborough, Pa., G. W. Merrick.
 Wheeling, W. Va., C. J. Rawling.
 Williamsport, Pa., R. Hawley.
 Winona, Minn., D. Sinclair.
 Wooster, Ohio, A. S. McClure.
 Worcester, Mass., J. Pickett.
 Zanesville, Ohio, J. C. Douglass.

The following officers receive and retain, subject to the warrants of the Post-Office Department, the funds of such post-offices as are instructed to deposit in their hands, viz:

The Treasurer of the United States at Washington, D. C.

The assistant treasurers of the United States at—

New York, N. Y.
 Baltimore, Md.
 New Orleans, La.

Cincinnati, Ohio.
 Saint Louis, Mo.
 Philadelphia, Pa.

Boston, Mass.
 Chicago, Ill.
 San Francisco, Cal.

Ninety-nine post-offices are draft-offices, and during the year paid 17,994 drafts, issued by the Postmaster-General, countersigned, entered, and sent out by the Auditor, for sums in the aggregate of	\$1,741,389 38
Two thousand seven hundred and eighty-one are deposit-offices, a portion of which during the year deposited with the Treasurer and assistant treasurers of the United States the sum of	4,256,273 50
Thirty-four thousand six hundred and eighty-five offices are collection-offices, and paid on collection-orders issued to mail-contractors the sum of	5,345,162 26
One thousand one hundred and forty-six offices are special offices, and derive their mail supplies by the payment of the revenue of their offices therefor, amounting to	56,703 60
Four thousand three hundred and eighty-nine post-offices are supplied by mail-messengers, for which service there was paid during the year..	648,933 21

Revenue account of the Post-Office Department.

The receipts of the department for the fiscal year ended June 30, 1878, were	\$29,277,516 95
The amount placed in the Treasury for the service of the department for the fiscal year, being grants in aid of the revenue under the following acts of Congress, were:	
Under the act approved December 15, 1877, to supply a deficiency in the appropriation for postal railway-clerks, route-agents, mail-route messengers, and local agents for the fiscal year ended June 30, 1878	\$10,000 00
Under same act to defray the expenses of delegates to International Postal Congress, Paris, France, in spring of 1878	4,000 00
Under same act for deficiency in compensation of post-masters for fiscal year ended June 30, 1877	284,283 36
Under same act to supply a deficiency in the appropriation for inland mail transportation on star and steamboat routes for the fiscal year ended June 30, 1878.	500,000 00
Under an act approved April 3, 1878, to pay the New Brunswick and Canada Railroad Company for transporting the mails from November 1, 1872, to December 31, 1874	11,935 73
Under the act approved April 29, 1878 (Private No. 26), for the relief of T. W. Collier, postmaster at Coshocton Ohio	

Under the act approved April 30, 1878, for railway post-office clerks, route-agents, and mail-route messengers for the fiscal year ended June 30, 1878	\$7,000 00	
Under the act approved June 12, 1878 (Private No. 216), for the relief of E. B. Head, postmaster at Harrodsburg, Kentucky	127 00	
Under the act approved June 14, 1878, to meet a deficiency in the appropriation for compensation of postmasters for the fiscal year ended June 30, 1878	400,000 00	
Under same act to pay balance due Texas and New Orleans Railroad Company for carrying the mails on route 8501	577 16	
Under same act to pay J. C. Clendenin for carrying the mails in North Carolina in 1867	101 00	
Under same act to meet a deficiency in the revenues of the Post-Office Department for the fiscal year ended June 30, 1878	550,000 00	
Under the act approved June 20, 1878 (Private No. 225), for the relief of George H. Giddings, of Texas	2,967 43	
Under the act approved June 20, 1878 (Sundry Civil), to pay the Quartermaster's Department on account of Memphis and Little Rock Railroad Company, being amount due for mail service prior to July 1, 1872	16,897 98	
Under same act to supply deficiency in the appropriation for compensation of postmasters for the fiscal year ended June 30, 1878	75,000 00	
Under same act to supply deficiency in the postal revenues for the fiscal year ended June 30, 1878	250,000 00	
Under same act to pay T. A. Kendig for carrying the mails in Louisiana from November 1, 1866, to June 30, 1867	4,099 44	
Under second section of the act approved July 12, 1876, for supplying deficiencies in the revenues of the Post-Office Department for the fiscal year ended June 30, 1877	250,000 00	
Under the second section of the act approved March 3, 1877, for supplying deficiencies in the revenues of the Post-Office Department for the fiscal year ended June 30, 1878	2,939,725 00	
		<u>\$5,307,652 82</u>
Aggregate of revenues and grants		34,585,169 77
The expenditures of the department for the fiscal year ended June 30, 1878, were		<u>34,165,084 49</u>
Excess of receipts		<u>420,065 23</u>
The balance standing to the credit of the revenue account at the close of the fiscal year ended June 30, 1877, as per last report was	\$2,843,432 60	
Add excess of receipts during fiscal year 1878	420,065 28	
Total	3,263,517 88	
Add amount of credit balance accounts closed by "suspense" during fiscal year 1878	5,647 22	
Total	3,269,165 10	
Deduct amount of debit balance accounts closed by "bad debts" and "compromise" accounts during fiscal year 1878	23,108 96	
Leaving to the credit of the revenue account at close of fiscal year		3,246,056 14
Due by late postmasters: in suit	255,442 45	
Due by late postmasters: not in suit	243,121 47	
		<u>498,563 92</u>
Due to late postmasters on accounts not closed		2,747,492 22
		<u>47,292 21</u>
The amount available at close of the fiscal year		<u>2,794,784 43</u>

The net revenues of the department from postages, being the aggregate of balances due the United States by postmasters on the adjustment of their quarterly accounts for the year, after deducting their compensation and the expenses of their offices, was—

For the quarter ended September 30, 1877	\$3,867,356 52
For the quarter ended December 31, 1877	4,332,463 02
For the quarter ended March 31, 1878	4,491,562 49
For the quarter ended June 30, 1878	4,147,733 50
Total	16,839,115 53

The amount of letter-postages paid in money was—

For the quarter ended September 30, 1877	\$50,215 93
For the quarter ended December 31, 1877	94,472 14
For the quarter ended March 31, 1878	64,206 65
For the quarter ended June 30, 1878	75,140 68
Total	284,035 40

The amount of stamps, stamped envelopes, newspaper and periodical stamps, postal cards, and newspaper-wrappers sold, was—

For the quarter ended September 30, 1877	\$6,453,133 92
For the quarter ended December 31, 1877	6,959,056 03
For the quarter ended March 31, 1878	7,137,795 43
For the quarter ended June 30, 1878	6,825,607 74
Total	27,375,593 12

The amount of official stamps furnished the different departments and included in the above amounts of stamps sold, was—

For the Treasury Department	\$199,900 00
For the War Department	79,999 90
For the Navy Department	6,350 00
For the Interior Department	16,174 00
For the Department of Agriculture	30 00
For the Department of Justice	2,470 00
Total	304,923 90

The number of quarterly returns of postmasters received and audited, on which the sum of \$16,839,115.53 was found due the United States, was—

For the quarter ended September 30, 1877	37,427
For the quarter ended December 31, 1877	37,832
For the quarter ended March 31, 1878	38,205
For the quarter ended June 30, 1878	38,741
Total	152,211

MAIL TRANSPORTATION.

The amount charged to transportation accrued and placed to the credit of mail contractors and others for mail transportation during the fiscal year was—

For the regular supply of mail-routes	\$16,194,163 25
For the supply of special and mail-messenger offices	705,736 41
For the salaries of postal railway clerks, route, and other agents	2,496,663 82
For the salaries and per diem of the assistant superintendents of the postal railway service	47,615 78
Total	19,444,179 26

FOREIGN MAIL-TRANSPORTATION.

New York, San Domingo, British packet agent at St. Thomas and Hayti	\$1,906 80
New York and Cuba	5,770 94
New York, Queenstown, and Liverpool	93,303 91
New York and England	19,849 09
New York to Vera Cruz, via New Orleans	4,550 83
New York and Port au Prince, Hayti	4 46
New York and Argentine Republic	54 18
New York and Jamaica	402 91
New York and Aspinwall	702 80
New York and Venezuela	148 56
New York and Aspinwall, San Francisco and Panama, New York and British packet agents at Colon and Panama, New York to Ecuador and Guatemala	17,997 96
New York and Barbadoes	21 58
New York and Porto Rico	115 32
New York and Bermuda	646 35
New York and St. Thomas	265 73
New York, Venezuela, and St. Kitts	520 03
New York and Brazil	1,376 34
New York and Uruguay	8 88
New York, Hamburg, England, and France	29,647 69
New York and Halifax	16 39
New York and San Domingo	161 12
New York and Glasgow	1,863 88
New York and Barbadoes, via Key West	9 90
New York, England, and Bremen	21,218 25
Boston, Queenstown, and Liverpool	1,376 33
Boston and Halifax	35 07
Boston and Yarmouth	65 53
Philadelphia and Queenstown	1,332 12
Philadelphia and England	4 27
Philadelphia and Brazil	72 67
Philadelphia and St. Thomas	10 05
Baltimore and Bremen	16 86
Portland, Detroit, and Chicago	1,227 65
Cleveland, Ohio, and Canada	39 57
New Orleans and Cuba	166 31
Savannah and Cuba	16 82
New Orleans and Vera Cruz	141 87
San Francisco, New South Wales, and Australian Colonies	14,730 78
San Francisco and Panama	65 79
San Francisco and Shanghai, China	330 58
San Francisco and Yokohama, Japan	807 97
San Francisco and Hong-Kong, China	1,211 01
San Francisco and Honolulu	214 38
San Francisco, Yokohama, and Hong-Kong	584 04
Halifax, Nova Scotia, and Liverpool	465 14
United States and France	546 83
Expenses of government mail agent at Panama	1,435 60
Expenses of government mail agent at Aspinwall	940 00
	<u>\$226,401 14</u>

19,670,580 40

The amount credited to transportation accrued and charged to contractors for overcredits, was—

For fines imposed	\$3,162 85
For deductions	87,353 50
	<u>90,516 35</u>

Net amount to the credit of mail contractors

19,580,064 05

The amount paid during the year was

19,299,617 33

Excess of transportation accrued

280,446 72

19,580,064 05

STATEMENT OF COLLECTION DIVISION.

To this division is intrusted the charge and final settlement of all accounts of late postmasters.

Balance due United States brought forward from last report.....	\$420,330 40
Balance due United States on account of postmasters becoming late during the fiscal year	373,967 27
	<hr/>
Amount collected during the year	794,297 67
	<hr/>
Balance remaining due United States	496,563 92
	<hr/>
Of which there is in suit	\$255,442 45
Not in suit	243,121 47
	<hr/>
	496,563 92
	<hr/>
Balance due to late postmasters	72,962 03
Amount paid during the year	25,669 82
	<hr/>
Balance remaining due to late postmasters.....	47,292 21

The accompanying tables, numbered from 1 to 29, inclusive, exhibit in detail the transactions of the department for the fiscal year.

I have the honor to be, very respectfully

J. M. MCGREW,
Auditor.

HON. DAVID M. KEY,
Postmaster-General.

No. 1.—Statement exhibiting quarterly the receipts of the Post-Office Department, under their several heads, for the fiscal year ended June 30, 1878.

Receipts.	Quarter ended Septem-ber 30, 1877.	Quarter ended Decem-ber 31, 1877.	Quarter ended March 31, 1878.	Quarter ended June 30, 1878.	Aggregate.
Letter postage	\$50,215 93	\$94,472 14	\$84,206 65	\$75,140 68	\$284,035 40
Box-rent and branch offices....	334,362 53	338,411 11	343,985 06	341,689 69	1,358,448 39
Fines and penalties.....	690 30	797 50	865 45	4,069 02	6,442 87
Postage-stamps, stamped en-velopes, newspaper-wrappers, and postal cards.....	6,453,133 92	6,959,056 03	7,137,795 43	6,825,607 74	27,375,593 12
Dead letters.....	1,979 00	4,818 30	1,190 98	948 83	8,937 01
Revenue from money-order business				209,647 89	209,647 89
Miscellaneous	8,849 47	6,529 32	7,870 25	11,163 23	34,412 27
Total.....	6,849,231 15	7,404,084 30	7,555,913 83	7,468,287 68	29,277,516 95

J. M. MCGREW, *Auditor.*

OFFICE OF THE AUDITOR OF THE TREASURY
FOR THE POST-OFFICE DEPARTMENT, October 28, 1878.

No. 2.—Statement exhibiting quarterly the expenditures of the Post-Office Department, under their several heads, for the fiscal year ended June 30, 1878.

Appropriations.	Quarter ended September 30, 1877.	Quarter ended December 31, 1877.	Quarter ended March 31, 1878.	Quarter ended June 30, 1878.	Aggregate.	Paid for previ- ous years, but included in "aggregate."
Compensation of postmasters	\$1,877,186 00	\$1,979,556 25	\$2,064,808 34	\$3,056,301 13	\$7,977,851 73	\$10,930 35
Compensation of clerks for post-offices	823,257 30	827,307 18	824,477 94	846,986 66	3,325,070 96	378 96
Compensation of letter-carriers and incidental expenses	452,596 17	453,388 60	457,942 83	461,014 79	1,834,142 36	86 23
Wrapping paper	3,335 00	2,960 00	4,645 00	5,569 00	16,509 00	
Twine	9,683 00	11,607 30	10,788 37	11,048 00	43,306 47	1,143 00
Post marking and canceling stamps	2,479 30	1,977 37	2,379 53	2,163 75	8,999 85	
Letter-balances				3,143 00	3,143 00	
Rent, light, and fuel for post-offices	98,493 85	95,323 13	99,208 23	92,973 65	376,998 85	
Stationery	8,621 34	9,391 71	9,492 03	10,169 48	37,574 56	
Furniture for post-offices	3,990 92	4,387 58	1,073 78	1,905 64	10,717 92	
Miscellaneous, office of First Assistant Postmaster-General	16,714 17	31,766 05	17,254 94	18,037 83	73,639 99	
Inland mail transportation, railroad	2,984,540 70	2,357,416 71	2,328,455 46	2,536,998 73	9,508,405 51	231 36
Inland mail transportation, star	1,578,960 09	1,584,982 31	1,625,641 51	1,312,970 66	6,425,705 55	185,206 51
Compensation of railway post-office clerks	307,520 21	307,700 37	306,333 15	312,970 66	1,236,524 39	52,033 86
Compensation of route-agents	247,475 15	246,659 31	247,123 01	254,996 45	996,254 88	
Compensation of mail-route messengers	40,441 50	36,592 17	37,464 86	38,104 44	154,592 87	
Compensation of local agents	37,591 43	26,534 88	27,161 27	24,014 06	109,301 64	
Compensation of mail-messengers	161,329 59	155,837 31	165,001 00	166,864 91	649,032 81	
Mail-bags and keys		5,000 00			5,960 00	4,413 45
Mail-bags and catches	15,799 93	59,157 96	40,933 04	35,583 45	141,474 44	
Post-route maps	7,869 77	7,806 73	8,408 75	6,771 55	30,855 80	
Mail deprecations and special agents	41,777 84	34,098 49	31,146 73	32,830 32	139,777 35	8,661 46
Postage stamps	17,634 85	18,087 13	20,882 40	18,703 98	76,337 35	
Distribution of postage-stamps	2,187 78	1,485 25	1,475 00	1,549 45	6,697 48	
Stamped envelopes and newspaper-wrappers	110,331 99	120,638 87	126,334 95	116,898 53	474,131 64	
Distribution of stamped envelopes and newspaper-wrappers	49,648 01	3,590 73	3,268 10	3,842 40	17,317 39	
Distribution of postal cards	6,596 10	36,856 03	35,427 36	35,150 47	157,075 76	
Registration of postal cards	3,363 36	1,427 90	1,363 05	1,812 03	6,945 34	3,503 85
Registral-packets for postmasters	3,200 00	6,392 50	5,731 25	7,900 50	22,224 25	23,498 90
Official envelopes for postmasters	2,503 29	4,468 93	5,717 43	3,675 84	14,365 49	1,275 00
Dead-letter envelopes	734 50	3,940 00	4,177 43	438 00	1,774 90	
Ship, steamboat, and way letters	648 61	645 81	511 19	586 53	2,386 14	
Letters to United States marshals, attorneys, clerks of courts, and counsel	894 59	1,050 99	463 32	1,995 48	4,404 34	520 35
Engraving, printing, and binding drafts and warrants	10 00	3,131 50		1,980 00	5,098 50	
Advertising	3,161 35	3,132 35	9,180 68	8,453 65	23,290 04	8,075 50
Miscellaneous, office of Postmaster-General	451 59	443 46	174 40	5 00	1,074 46	
Foreign mail transportation	44,644 48	47,304 74	63,492 09	63,492 09	218,969 55	
Balance due foreign countries	134 66	4,496 64	11,541 15	16,517 34	26,619 79	11,125 85
Special commission on railroad transportation	5,000 00	1,000 00			6,000 00	
Miscellaneous, Third Assistant Postmaster-General		87 19			87 19	
Delegates to International Postal Congress, Paris, France		4,000 00			4,000 00	
Total	\$8,320,344 91	\$8,492,344 91	\$8,600,703 96	\$8,851,731 69	\$34,165,064 49	\$90,436 90

J. M. MCGREW, Auditor.

OFFICE OF THE AUDITOR OF THE TREASURY FOR THE POST-OFFICE DEPARTMENT, October 26, 1878.

No. 3.—Statement of the postal receipts and expenditures of

States and Territories.	Letter-postage.	Waste-paper and twine.	Box-rents and branch offices.	Postage-stamps, stamped envelopes, and postal cards.	Total receipts.
Maine	\$1,758 32	\$118 36	\$24,314 76	\$463,771 42	\$489,962 86
New Hampshire	534 04	106 62	15,153 48	227,704 28	303,498 40
Vermont	453 24	101 62	11,170 31	239,820 27	271,545 44
Massachusetts	10,969 07	1,098 81	110,959 31	1,877,865 43	2,000,992 62
Rhode Island	902 23	102 29	20,411 24	500,689 03	522,104 79
Connecticut	2,811 18	184 67	40,144 95	578,295 57	621,436 37
New York	71,489 84	3,804 05	178,517 74	5,224,377 65	5,546,189 28
New Jersey	2,543 62	209 93	25,246 71	581,554 62	609,555 00
Pennsylvania	17,761 87	1,346 24	95,252 23	2,583,871 42	2,698,332 43
Delaware	268 67	11 57	1,460 38	69,644 94	71,379 60
Maryland	6,150 30	138 46	10,084 98	507,257 35	523,631 09
Virginia	2,011 38	58 42	11,854 21	439,346 71	453,271 32
West Virginia	776 33	16 02	3,578 81	146,347 52	150,720 74
North Carolina	871 09	33 91	7,543 02	216,567 50	225,015 52
South Carolina	539 93	21 50	6,711 61	170,414 39	177,680 43
Georgia	1,729 91	199 52	17,733 94	339,118 11	349,761 54
Florida	911 07	14 45	5,023 66	86,981 15	92,340 33
Ohio	7,124 34	1,043 23	79,265 44	1,800,907 32	1,888,940 30
Michigan	6,234 85	502 65	63,007 83	898,921 28	968,666 61
Indiana	2,728 91	421 32	45,520 30	757,871 06	806,541 61
Illinois	22,014 36	1,930 46	105,718 25	2,206,432 48	2,336,095 55
Wisconsin	3,075 19	326 30	47,669 57	678,269 50	729,333 52
Iowa	3,560 91	351 38	65,853 69	667,090 97	736,856 95
Missouri	7,943 74	653 86	31,831 21	1,017,935 01	1,058,354 42
Kentucky	3,011 53	318 64	16,801 42	429,039 41	448,971 00
Tennessee	1,570 38	146 33	10,830 15	322,258 27	340,795 13
Alabama	1,116 88	43 12	11,680 36	260,659 36	273,499 72
Mississippi	749 29	36 68	13,010 84	191,913 32	205,703 13
Arkansas	407 56	31 53	8,665 36	163,379 79	172,444 24
Louisiana	2,754 62	17 39	19,427 60	276,436 84	299,632 62
Texas	4,006 02	155 37	42,907 60	452,855 82	499,924 81
California	6,930 37	201 90	68,154 42	619,426 46	694,711 15
Oregon	178 53	48 04	10,430 19	107,187 86	117,845 62
Minnesota	3,967 62	176 97	23,335 84	403,567 14	433,047 17
Kansas	1,234 70	114 41	27,756 69	409,533 66	438,637 46
Nebraska	926 30	67 34	12,528 38	202,517 52	216,039 60
Nevada	361 09	10 04	12,822 75	79,207 42	192,407 30
Colorado	693 15	77 08	23,057 44	142,443 49	166,271 16
Utah	369 32	52 70	5,676 20	76,935 31	83,033 53
New Mexico	19 52	4 00	1,470 30	21,337 28	22,831 10
Washington	98 44	4 22	2,645 89	38,454 82	41,203 43
Dakota	271 10	23 73	5,665 94	64,010 29	69,971 06
Arizona	83 38	28 68	1,638 25	16,211 16	17,941 47
Idaho	35 69	15 18	1,945 25	21,861 89	23,960 61
Wyoming	70 75	21 07	2,833 20	30,185 10	33,110 12
Montana	124 64	22 38	5,885 34	34,221 85	40,314 21
Alaska	43	1 25	.....	135 34	137 02
District of Columbia	3,086 20	179 43	5,616 47	162,358 86	177,240 96
Deduct miscellaneous items	207,194 90	14,594 28	1,358,205 92	27,099,668 01	28,679,663 11
Add miscellaneous items	76,840 50	.....	242 47	275,925 11	353,008 08
	284,035 40	14,594 28	1,358,448 39	27,375,593 12	29,032,671 19

NOTE.—The following items of expenditure and revenue, being of a general nature, are not embraced

Amount paid for foreign mails and expenses of government agent	\$212,809 55
Balances due foreign countries	28,619 79
Ship, steamboat, and way letters	2,338 14
Wrapping-paper	16,509 00
Twine	43,306 47
Office furniture	84 50
Advertising	11,769 69
Mail-bags and catchers	103,006 22
Salary and per diem of assistant superintendents of postal railway service	47,615 70
Mail-locks and keys	5,690 00
Postmarking and canceling stamps	8,999 25
Mail depredations and special agents	139,777 22
Letter-balances	3,142 00
Expenses of postage-stamps, stamped envelopes, and postal cards	732,224 29
Dead letters, official and registered envelopes, locks and seals	39,364 53
Sundry and miscellaneous payments	58,060 72
Excess of expenditures brought down	3,947,291 51

5,412,860 02

POSTAL RECEIPTS AND EXPENDITURES.

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the United States for the fiscal year ended June 30, 1878.

Compensation of postmasters.	Clerks for offices, rent, light, and incidental expenses of post-offices.	Compensation of letter-carriers.	Compensation of route-agents, postal railway clerks, mail messengers, and supply of special offices.	Transportation by States.	Total expenses.	Excess of expenditures over receipts.	Excess of receipts over expenditures.
\$188,004 90	\$45,309 39	\$10,182 10	\$42,379 92	\$226,449 69	\$512,326 00	\$32,363 14	
130,645 01	18,306 45	3,681 40	17,438 46	100,413 73	270,485 05		\$33,013 35
128,782 36	14,127 81		90,057 07	144,880 41	307,847 65	36,300 21	
372,489 04	314,627 71	170,773 03	199,612 99	331,922 76	1,389,424 53		610,888 09
41,238 16	26,404 18	16,551 46	8,941 87	43,555 92	135,991 59		86,113 30
180,959 53	66,907 55	18,176 77	51,030 90	197,455 41	514,529 46		106,906 91
799,788 98	1,073,557 00	513,958 75	411,676 72	1,405,074 31	4,204,055 78		1,344,133 52
199,648 11	44,543 35	50,960 23	35,989 16	237,591 60	567,339 45		42,222 63
639,200 21	331,692 15	281,729 22	\$22,211 68	894,340 38	2,369,173 64		326,058 79
24,610 25	5,088 16	6,994 75	9,925 09	24,957 35	71,575 60	196 00	
98,465 33	76,526 96	51,517 20	44,659 24	308,944 77	580,143 50	56,512 41	
175,151 60	46,824 16	18,581 31	43,573 35	396,515 88	680,656 30	227,384 98	
68,276 17	12,666 62	4,416 83	15,845 15	106,083 39	207,988 16	56,567 42	
107,837 69	18,706 91		36,511 17	209,457 14	372,512 91	147,497 39	
69,464 35	12,697 98	5,820 20	18,221 00	123,585 90	229,849 43	52,109 00	
136,902 95	45,287 82	8,659 50	60,278 37	268,117 96	519,246 60	169,465 06	
43,741 73	7,484 52		14,939 60	136,600 10	202,765 95	109,825 62	
501,045 94	209,870 70	116,999 73	418,210 32	1,247,941 60	2,494,048 29	605,107 36	
351,635 45	90,217 14	32,157 22	79,565 23	411,349 13	964,921 17		3,743 44
310,995 40	85,400 96	36,798 61	116,808 21	413,588 67	992,831 85	176,290 24	
605,791 37	400,796 22	148,055 26	341,111 16	996,174 84	2,481,928 85	145,833 30	
276,591 54	61,674 90	22,435 44	71,115 00	361,924 71	793,748 59	64,415 07	
396,103 76	64,471 99	17,558 56	99,468 74	454,930 12	1,036,533 17	79,676 32	
263,663 68	150,860 99	102,883 84	179,455 86	743,134 97	1,439,939 34	381,584 92	
145,633 29	43,052 59	24,501 58	64,160 93	295,043 22	575,897 61	126,926 61	
119,759 92	41,871 31	15,976 04	70,273 62	206,362 58	454,243 47	113,448 34	
125,533 98	24,289 55	3,448 58	29,760 05	244,578 32	427,610 48	154,110 76	
102,700 23	13,348 88		13,378 13	170,595 00	300,029 24	94,319 11	
98,477 82	14,645 70		15,915 43	348,098 16	477,137 11	284,652 87	
61,819 66	57,839 26	36,613 33	19,284 51	234,070 94	409,627 70	110,995 02	
198,203 34	60,217 72		38,749 64	658,174 34	955,305 10	455,380 29	
217,360 15	120,534 62	42,376 84	77,302 70	729,706 41	1,187,280 72	292,569 57	
50,552 48	9,258 03		10,635 01	158,037 28	228,482 80	110,637 18	
173,581 33	38,462 11	13,803 91	51,652 59	220,778 97	498,278 91	65,931 74	
203,801 94	35,453 98	3,491 24	61,183 39	881,317 64	1,185,248 19	746,610 73	
93,341 81	18,546 05	4,438 85	56,828 24	477,181 86	650,336 81	434,297 21	
41,745 03	12,132 77		2,832 71	208,166 63	264,667 14	172,459 84	
63,405 08	22,855 77		19,254 15	206,103 09	311,618 09	145,346 93	
38,054 19	9,706 50		9,245 30	314,230 59	371,436 58	288,203 05	
13,292 94	1,620 00		222 60	315,170 74	330,296 28	307,465 18	
21,540 36	1,359 50		3,489 61	125,428 39	151,817 85	110,614 42	
37,492 98	2,964 58		1,325 63	134,613 24	176,396 43	106,425 37	
9,641 96	1,106 25			131,178 51	141,926 72	123,965 25	
13,833 06	1,178 50		60 32	93,099 37	108,171 25	84,290 64	
15,954 44	3,531 50		183 00	126,334 49	146,003 43	112,893 31	
21,361 55	4,988 61		83 49	147,887 96	174,319 61	134,005 40	
82 21				82 21			54 81
4,995 71	96,237 00	31,868 81	98,824 04		231,925 56	54,684 60	
7,983,165 97	3,858,800 46	1,817,875 59	3,202,300 64	16,225,147 47	33,087,290 13	6,960,741 76	2,553,114 74
5,314 25			99 59	113,908 98	107,327 43	107,327 43	353,008 08
	5,529 41	6,266 80					
7,977,851 72	3,864,329 87	1,824,142 39	3,202,400 23	16,111,238 49	32,979,962 70	6,853,414 32	2,906,122 82

In the above statement, viz:

Receipts on account of dead letters	\$8,937 01
Receipts on account of fines and penalties	6,442 87
Receipts on account of miscellaneous	19,817 99
Receipts on account of money-order business	209,647 89
Excess of transportation accrued	280,416 73
Total excess of expenditures over receipts	4,887,567 54

5,412,860 02

J. M. McGREW, Auditor.

No. 4.—Comparative statement of receipts and expenditures of the Post-Office Department from July 1, 1838, to June 30, 1878.

Year.	Receipts.			Expenditures.
	Revenue.	Treasury grants.	Total.	
1837.....	\$4,945,668 21	.....	\$4,945,668 21	\$3,988,319 03
1838.....	4,338,733 46	.....	4,338,733 46	4,430,669 21
1839.....	4,434,656 70	.....	4,434,656 70	4,636,536 31
1840.....	4,513,521 92	.....	4,513,521 92	4,718,235 64
1841.....	4,407,726 27	\$462,657 00	4,900,383 27	4,499,527 61
1842.....	4,346,849 65	.....	4,346,849 65	5,674,751 20
1843.....	4,296,225 43	.....	4,296,225 43	4,374,753 71
1844.....	4,217,287 83	.....	4,217,287 83	4,296,512 70
1845.....	4,229,241 80	.....	4,229,241 80	4,320,731 99
1846.....	3,487,199 35	750,000 00	4,237,199 35	4,076,036 91
1847.....	3,600,309 23	12,500 00	3,692,809 23	3,979,542 10
1848.....	4,355,211 10	125,000 00	4,480,211 10	4,326,250 27
1849.....	4,705,176 28	.....	4,705,176 28	4,479,049 13
1850.....	5,499,984 86	.....	5,499,984 86	5,212,953 43
1851.....	6,410,604 33	.....	6,410,604 33	6,378,401 68
1852.....	5,184,526 84	1,741,444 44	6,925,971 28	7,108,459 04
1853.....	5,240,724 70	2,225,000 00	7,465,724 70	7,989,756 59
1854.....	6,255,580 92	2,736,748 96	8,992,329 88	8,577,494 12
1855.....	6,042,136 13	3,114,542 26	9,156,678 39	9,968,343 29
1856.....	6,930,821 68	3,748,981 56	10,679,803 24	10,405,226 36
1857.....	7,353,951 76	4,528,004 67	11,881,956 43	11,508,057 93
1858.....	7,486,792 86	4,679,270 71	12,166,063 57	12,729,470 01
1859.....	7,968,484 07	3,915,946 49	11,884,430 56	11,458,083 63
1860.....	8,516,087 40	11,154,167 54	19,670,254 94	19,170,609 29
1861.....	8,249,228 40	4,639,806 53	12,889,034 93	13,606,750 11
1862.....	8,299,820 90	2,598,953 71	10,898,774 61	11,125,364 13
1863.....	11,153,789 59	1,007,648 72	12,161,438 31	11,314,206 84
1864.....	12,438,253 78	749,980 00	13,188,233 78	12,644,726 20
1865.....	14,356,158 70	3,968 46	14,360,127 16	13,694,729 28
1866.....	14,436,986 21	.....	14,436,986 21	15,352,079 30
1867.....	15,297,026 87	3,991,666 67	19,288,693 54	19,325,423 46
1868.....	16,292,600 80	5,696,525 00	21,989,125 80	22,730,593 63
1869.....	15,344,510 72	5,707,115 30	21,051,626 02	22,698,131 50
1870.....	19,772,220 65	4,022,140 85	23,794,361 50	23,998,537 62
1871.....	20,007,045 42	4,126,200 00	24,133,245 42	24,390,104 05
1872.....	21,915,426 37	4,933,750 00	26,849,176 37	26,658,193 31
1873.....	22,926,741 57	5,990,475 00	28,917,216 57	29,084,945 67
1874.....	20,471,071 82	5,922,433 55	26,393,505 37	28,196,414 58
1875.....	20,791,360 59	6,704,646 96	27,496,007 55	28,611,308 55
1876.....	22,634,197 50	5,088,563 03	27,722,760 53	28,263,467 58
1877.....	27,331,585 26	7,013,300 00	34,344,885 26	33,496,323 44
1878.....	29,277,516 95	5,307,652 82	34,585,169 77	34,165,084 49

OFFICE OF THE AUDITOR OF THE TREASURY
FOR THE POST-OFFICE DEPARTMENT, October 28, 1878.

J. M. MCGREW, Auditor.

No. 5.—Statement, in detail, of miscellaneous payments made by Post-Office Department for the fiscal year ended June 30, 1878, and charged to "Miscellaneous account First Assistant Postmaster-General."

AMOUNTS PAID BY WARRANT.

Date.	To whom allowed.	For what object.	Amount.
1877.			
Aug. 7	Thomas B. Cheney	Special agent Post-Office Department, for telegrams, in June and July, 1877.	\$6 31
7	W. L. Hunt	Special agent Post-Office Department, assistant superintendent railway mail service, for railway fares paid, and for printing subscriptions for railway-guides, and for lumber, and making "examining cases."	77 25
7	L. M. Terrell	Special agent Post-Office Department, for amount paid for railroad fares, telegraphing, and cleaning office, in month of July, 1877.	17 90
7	James E. White	Special agent Post-Office Department, paid for telegrams and washing stamp, July, 1877.	43 13
9	H. J. McKusick	Special agent Post-Office Department, paid for rent of office, stationery, and telegrams, in month of July, 1877.	66 76

MISCELLANEOUS PAYMENTS.

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No. 5.—Statement in detail of miscellaneous payments, &c.—Continued.

Date.	To whom allowed.	For what object.	Amount.
1877.			
Aug. 9	C. Jay French	Special agent Post-Office Department, paid for advertising, stationery, and telegrams, during the month of July, 1877.	\$129 86
23	R. C. Jackson	Special agent Post-Office Department, paid for stationery, miscellaneous expenses, and telegraphing, during the month of July, 1877.	979 93
29	M. V. Bailey	Special agent Post-Office Department, for telegraphing, during July, 1877.	3 22
Sept. 5	Theo. N. Vail	Special agent Post-Office Department, paid for transportation expenses and telegraphing, during month of July, 1877.	66 11
7	Thomas P. Cheney	Special agent Post-Office Department, paid for telegraphing, during August, 1877.	11 82
7	W. L. Hunt	Special agent Post-Office Department, paid for printing, stationery, and telegraphing, during the month of August, 1877.	36 10
7	James E. White	Special agent Post-Office Department, paid for printing, stationery, telegraphing, and railroad fares, during the month of August, 1877.	41 40
10	H. J. McKusick	Special agent Post-Office Department, paid for office rent and telegraphing, during the month of August, 1877.	60 23
11	C. Jay French	Special agent Post-Office Department, paid for advertising, maps, office expenses, railway fares, and telegraphing, during month of August, 1877.	52 42
13	R. C. Jackson	Special agent Post-Office Department, paid for office fixtures, electric pen, and telegrams, during the month of August, 1877.	63 25
Oct. 3	W. L. Hunt	Special agent Post-Office Department, paid for "mounting official schemes," printing, making distributing boxes, and telegraphing, during September, 1877.	55 00
4	C. Jay French	Special agent Post-Office Department, paid for cleaning office, printing, stationery, and telegraphing, during month of September, 1877.	65 18
10	James E. White	Special agent Post-Office Department, paid for rubber stamp and telegraphing, during the month of September, 1877.	13 00
12	R. C. Jackson	Special agent Post-Office Department, paid for telegraphing, during September, 1877.	28 32
12	H. J. McKusick	Special agent Post-Office Department, paid for office rent, stationery, and telegraphing, during the month of September, 1877.	70 46
12	Western Union Telegraph Company, Virginia City, Nev.	For telegraphing by special agents of the Post-Office Department, during the months of October, November, and December, 1875, after the great fire.	44 40
15	Thomas P. Cheney	Special agent Post-Office Department, for map of Boston and vicinity for Nicholson, topographer of Post-Office Department, printing, and telegraphing, during September, 1877.	54 79
31	Theo. N. Vail	Special agent Post-Office Department, for electric pen, stationery, telegraphing, traveling expenses, and railroad fare, during September and October, 1877.	186 70
Nov. 9	Thomas P. Cheney	Special agent Post-Office Department, for printing schedules and telegraphing, during the month of October, 1877.	22 78
9	W. L. Hunt	Special agent Post-Office Department, for printing "official schemes," mounting maps, and telegraphing, during month of October, 1877.	44 44
9	John Frey	Special agent Post-Office Department, for cleaning office for 3 months, and office furniture, in month of October, 1877.	33 60
10	H. J. McKusick	Special agent Post-Office Department, for office rent and telegraphing, for the month of October, 1877.	56 83
13	James E. White	Special agent Post-Office Department, for cutting label-slips, chemicals for electric pen, and telegraphing, for the month of October, 1877.	70 28
15	C. Jay French	Special agent Post-Office Department, for cleaning office, printing and mounting "official schemes," and telegraphing, during October, 1877.	45 66
16	R. C. Jackson	Special agent Post-Office Department, for railroad fare and telegraphing, for the month of October, 1877.	33 81
19	L. M. Terrell	Special agent Post-Office Department, for cleaning office, printing schedule, and telegraphing, during the month of October, 1877.	35 20
Dec. 4	W. B. Thompson	Special agent Post-Office Department, for one railway guide, and telegraphing, during the month of November, 1877.	20 40

No. 5.—Statement in detail of miscellaneous payments, &c.—Continued.

Date.	To whom allowed.	For what object.	Amount.
1877.			
Dec. 7	R. C. Jackson	Special agent Post-Office Department, for printing schedules and telegraphing, during the month of November, 1877.	\$95 17
7	J. E. Recaide	Special agent Post-Office Department, for map-case, steamboat fare, and stationery, during the month of November, 1877.	15 43
7	L. M. Terrell	Special agent Post-Office Department, for cleaning office, fuel, and telegraphing, during month of November, 1877.	26 75
7	James E. White	Special agent Post-Office Department, for time-cards, cutting slips, and telegraphing, during the month of November, 1877.	31 11
10	W. L. Hunt	Special agent Post-Office Department, for printing bulletins, in month of November, 1877.	20 00
17	.....do	Special agent Post-Office Department, for telegraphing, during month of November, 1877.	13 25
1878.			
Jan. 3	John Frey	Special agent Post-Office Department, for office-rent for quarter ending December 31, 1877.	50 00
8	C. Jay French	Special agent Post-Office Department, for telegraphing, printing, and care of office, 4th quarter, 1877.	120 32
7	Thomas P. Cheney	Special agent Post-Office Department, for "examination case" chemicals for electric pen, mail-train schedule, and telegraphing, during month of December, 1877.	31 10
7	L. M. Terrell	Special agent Post-Office Department, for printing schedules, fuel, care of office, and telegraphing, during the month of December, 1877.	33 15
8	Theo. M. Vail	Special agent Post-Office Department, for transportation expenses other than railroad fare, railroad fare, and telegraphing, during December, 1877.	45 90
9	James E. White	Special agent Post-Office Department, for cutting slips, printing time-cards, railroad fares, and telegraphing, during month of December, 1877.	52 94
14	R. C. Jackson	Special agent Post-Office Department, for case for electric pen, printing schedules, and telegraphing, during month of December, 1877.	74 61
14	W. L. Hunt	Special agent Post-Office Department, for printing circulars and bulletins, and telegraphing, during the month of December, 1877.	40 65
16	H. J. McKusick	Special agent Post-Office Department, for office-rent, fuel, and telegraphing, during month of December, 1877.	69 53
Feb. 6	Thomas P. Cheney	Special agent Post-Office Department, for telegraphing, during January, 1878.	13 47
6	James E. White	Special agent Post-Office Department, for cutting slips, printing lists, and telegraphing, during the month of January, 1878.	42 31
13	H. J. McKusick	Special agent Post-Office Department, for office-rent, railroad fares, and telegraphing, during the month of January, 1878.	77 97
13	L. M. Terrill	Special agent Post-Office Department, for care of office, fuel, printing "schemes," railroad fares, and telegraphing, during month of January, 1878.	33 55
20	W. L. Hunt	Special agent Post-Office Department, for fuel, repairs of stove in office at Kansas City, Mo., printing bulletin, and telegraphing, during January, 1878.	74 80
20	R. C. Jackson	Special agent Post-Office Department, for telegraphing for month of January, 1878.	53 00
27	Edward McPherson	Chief of Bureau of Engraving and Printing for altering plate, printing, numbering, and binding special agents commissions, year 1878.	66 70
Mar. 6	W. L. Hunt	Special agent Post-Office Department, for telegraphing, electric-pen repairs and acids, and printing bulletin, during the month of February, 1878.	31 16
6	James E. White	Special agent Post-Office Department, for cutting slips, printing lists, and telegraphing, during the month of February, 1878.	43 93
11	H. J. McKusick	Special agent Post-Office Department, for rent of office, letter-books, and telegraphing, during the month of February, 1878.	73 47
11	C. Jay French	Special agent Post-Office Department, for repairs and chemicals for electric pen, light and heating office, carpenter-work for same, printing, railroad fares, and telegraphing, during the month of February, 1878.	111 03
13	R. C. Jackson	Special agent Post-Office Department, for telegraphing during month of February, 1878.	36 74

No. 5.—*Statement in detail of miscellaneous payments, &c.*—Continued.

Date	To whom allowed.	For what object.	Amount.
Mar. 15	E. W. Alexander	Special agent Post-Office Department, for steamship fare and telegraphing during the month of February, 1878.	\$23 25
30	M. V. Bailey	Special agent Post-Office Department, for repairs of safe-lock in local office at Grafton, W. Va., and telegraphing, during the month of February, 1878.	7 74
Apr. 1	Theo. N. Vail	Special agent Post-Office Department, for railway papers, railroad fares, and telegraphing, during the month of March, 1878.	59 85
1	Ray P. Eaton	Special agent Post-Office Department, for railroad fares and teams, during the month of March, 1878.	90 85
6	W. L. Hunt	Special agent Post-Office Department, for repairs, &c., to electric pen, mounting schedules, printing bulletins, and telegraphing, during the month of March 1878.	39 30
8	James E. White	Special agent Post-Office Department, for schedules and telegraphing during the month of March, 1878.	32 35
8	Thomas P. Cheney	Special agent Post-Office Department, for schedules, labels, and telegraphing, during the month of March, 1878.	115 17
12	H. J. McKusick	Special agent Post-Office Department, for office-rent, printing, and telegraphing, during the month of March, 1878.	74 35
12	C. Jay French	Special agent Post-Office Department, for heating office, carpenter-work, printing, and telegraphing, during the month of March, 1878.	46 06
15	R. C. Jackson	Special agent Post-Office Department, for printing schedules, and telegraphing, during the month of March, 1878.	85 74
May 6	Thomas P. Cheney	Special agent Post-Office Department, for printing schedules, and telegraphing, during the month of April, 1878.	12 72
9	C. Jay French	Special agent Post-Office Department, for cleaning office, rent of room at Crestline, Ohio, for examination of railway post-office clerks, for printing, cutting slips, and telegraphing, during the month of April, 1878.	70 91
9	W. L. Hunt	Special agent Post-Office Department, for printing and telegraphing during the month of April, 1878.	36 51
11	R. C. Jackson	Special agent Post-Office Department, for cutting and facing slips, and telegraphing, during the month of April, 1878.	36 81
13	H. J. McKusick	Special agent Post-Office Department, for rent of office, printing, marking, dating stamps, and telegraphing, during the month of April, 1878.	78 95
June 3	James E. White	Special agent Post-Office Department, for printing schemes and telegraphing, during the month of April, 1878.	37 52
6	L. M. Terrell	Special agent Post-Office Department, for telegraphing, printing, care of office, during the month of May, 1878.	25 05
6	W. L. Hunt	Special agent Post-Office Department, for fuel for office at Kansas City, Mo., printing bulletins, chemicals for electric pen, and telegraphing, during the month of May, 1878.	58 91
8	C. Jay French	Special agent Post-Office Department, for cleaning office, lumber, and carpentering, printing schemes, acid for electric pen, and telegraphing, for May, 1878.	61 54
12	H. J. McKusick	Special agent Post-Office Department, for rent of office and telegraphing during month of May, 1878.	56 40
12	James E. White	Special agent Post-Office Department, for ink, printing schedules, and telegraphing, during the month of May, 1878.	21 05
17	Thomas P. Cheney	Special agent Post-Office Department, for printing schedules and telegraphing during month of May, 1878.	25 83
19	R. C. Jackson	Special agent Post-Office Department, for painting and lettering mail-box in railroad depot and telegraphing, during the month of May, 1878.	25 22
July 6	L. M. Terrell	Special agent Post-Office Department, for care of office, chemicals for electric pen, printing schedules, and telegraphing, during month of June, 1878.	33 95
6	James E. White	Special agent Post-Office Department, for chemicals for electric pen, printing schedules, and telegraphing, during the month of June, 1878.	26 67

No. 5.—Statement in detail of miscellaneous payments, &c.—Continued.

Date.	To whom allowed.	For what object.	Amount
1878. July 8	W. L. Hunt.....	Special agent Post-Office Department, for chemicals and repairs of electric pen, printing bulletins, post-route maps, and telegraphing, during June, 1878.	\$35 20
8	C. Jay French.....	Special agent Post-Office Department, for care of office, printing schedules, changing and mounting maps, chemicals and repairs of electric pen, lumber and planing of shelves, and telegraphing, during June, 1878.	41 06
12	H. J. McKusick.....	Special agent Post-Office Department, for rent of office and telegraphing during month of June, 1878.	66 30
17	R. C. Jackson.....	Special agent Post-Office Department, for printing schedules, letter-copying press, and telegraphing, during the month of June, 1878.	64 42
25	George C. Maynard.....	For putting up and use of telephone in office of railway mail superintendent during months of May and June, 1878.	275 00
Aug. 7	Thomas P. Cheney.....	Special agent Post-Office Department, for telegraphing during month of June, 1878.	6 10
			4,889 26

AMOUNTS PAID BY DRAFTS.

1877. Sept. 1	L. M. Terrell.....	Special agent Post-Office Department, for cleaning office, printing schedules, and telegraphing, during the month of August, 1877.	\$31 15
7	W. B. Thompson.....	Special agent Post-Office Department, for Railway Guide, printing schedules, and stationery, and telegraphing, during the month of August, 1877.	61 57
Oct. 3	L. M. Terrell.....	Special agent Post-Office Department, for printing schedules and telegraphing, during the month of September, 1877.	24 35
8	W. B. Thompson.....	Special agent Post-Office Department, for Railway Guide, stationery, and telegraphing, during the month of September, 1877.	22 70
30	M. V. Bailey.....	Special agent Post-Office Department, for railroad fare and telegraphing, during the month of October, 1877.	2 00
Nov. 9	W. B. Thompson.....	Special agent Post-Office Department, for Railway Guide and telegraphing, during the month of October, 1877.	20 55
Dec. 6	Thomas P. Cheney.....	Special agent Post-Office Department, for railroad fare and telegraphing, during the month of November, 1877.	30 21
10	H. J. McKusick.....	Special agent Post-Office Department, for rent of office and telegraphing during the month of November, 1877.	20 30
1878. Jan. 3	R. P. Eaton.....	Special agent Post-Office Department, for railroad fare and other traveling expenses on official business in Massachusetts and Maine during fourth quarter, 1877.	6 00
Feb. 5	W. B. Thompson.....	Special agent Post-Office Department, for telegraphing during month of January, 1878.	36 42
Jan. 7	W. B. Thompson.....	Special agent Post-Office Department, for telegraphing during month of December, 1877.	53 32
Mar. 7	W. B. Thompson.....	Special agent Post-Office Department, for Railway Guide, telegraphing, and horse hire, during the first quarter, 1878.	30 02
Apr. 5	L. M. Terrell.....	Special agent Post-Office Department, for cleaning office, printing schedules, repairs of electric pen, and telegraphing, during March, 1878.	22 75
Mar. 12	L. M. Terrell.....	Special agent Post-Office Department, for fuel, printing schedules, and telegraphing, during the month of February, 1878.	26 30
Apr. 8	W. B. Thompson.....	Special agent Post-Office Department, for telegraphing during March, 1878.	27 61
12	John Frey.....	Special agent Post-Office Department, for cleaning office, repairs of furniture, fuel, and light, during the month of March, 1878.	25 00
22	E. W. Alexander.....	Special agent Post-Office Department, for railroad and steamboat fare, on extraordinary business, during month of March, 1878.	14 51

No. 5—Statement in detail of miscellaneous payments, &c.—Continued.

Date.	To whom allowed.	For what object.	Amount.
1878. May 1	John Frey	Special agent Post-Office Department, for stationery and fuel, during the month of April, 1878.	\$12 80
4	L. M. Terrell	Special agent Post-Office Department, for care of office and telegraphing, during April, 1878.	11 50
6	W. B. Thompson	Special agent Post-Office Department, for Railway Guide and telegraphing, during the month of April, 1878.	26 10
29	Theo. N. Vail	Special agent Post-Office Department, for traveling expenses and telegraphing, during January, February, March, April, and May, 1878.	67 85
June 7	W. B. Thompson	Special agent Post-Office Department, for Railway Guide and telegraphing, during the month of May, 1878.	19 57
July 6	W. B. Thompson	Special agent Post-Office Department, for Railway Guide, light, and telegraphing, during the month of June, 1878.	16 04
Aug. 10	W. B. Thompson	Special agent Post-Office Department, for telegrams and freight, during the month of July, 1878.	76 92.
Sept. 12	W. B. Thompson	Special agent Post-Office Department, for telegrams, light, fuel, and stationery, during month of August, 1878.	71 99
Aug. 14	T. N. Vail	Special agent Post-Office Department, for fares and telegrams, during the month of July, 1878.	28 05
			<hr/> 842 15

AMOUNTS CREDITED POSTMASTERS ON THEIR GENERAL ACCOUNTS.

1877. Oct. 31	T. F. Robley	Postmaster at Fort Scott, Kan., for amount paid on account of railway mail service in 3d quarter, 1877.	\$37 50
9	F. J. Popple	Postmaster at Dunkirk, N. Y., for amount paid on account of railway mail service in 3d quarter, 1877.	37 50
Nov. 2	E. S. Tobey	Postmaster at Boston, Mass., for amount paid on account of railway mail service in 3d quarter, 1877.	90 70
9	J. P. Woolfolk	Postmaster at Jackson, Tenn., for amount paid on account of railway mail service in 3d quarter, 1877.	30 00
2	Alexander Reed	Postmaster at Toledo, Ohio, for amount paid on account of railway mail service in 3d quarter, 1877.	30 00
3	C. W. Bacon	Postmaster at New Lebanon, N. Y., for telegraphing during 3d quarter, 1877.	5 77
15	D. G. Potts	Postmaster at Petersburg, Va., for amount paid for ribbon for stamp and repairs in 2d quarter, 1877.	4 50
27	W. H. Lowdermilk	Postmaster at Cumberland, Md., for expense of removing post-office and fixtures in 4th quarter, 1877.	125 00
27	T. S. Case	Postmaster at Kansas City, Mo., for amount paid on account of railway mail service in 3d quarter, 1877.	57 45
30	G. Robertson	Postmaster at Troy, N. Y., for amount paid for printing in 3d quarter, 1877.	40 50
11	Benjamin Conley	Postmaster at Atlanta, Ga., for amount paid on account of railway mail service in 3d quarter, 1877.	77 95
Dec. 12	J. T. Beach	Postmaster at Saint Joseph, Mo., for amount paid for repairs of office in 2d quarter, 1877.	21 00
26	M. M. Brown	Postmaster at Quincy, Mich., for miscellaneous expenditures in 3d quarter, 1877.	1 50
28	M. S. Ross	Postmaster at Newport, Ky., for miscellaneous expenditures in 3d quarter, 1877.	6 50
1878. Jan. 2	T. L. James	Postmaster at New York, N. Y., for amount paid on account of railway mail service in 4th quarter, 1877.	93 53
4	.....do	Postmaster at New York, N. Y., for miscellaneous expenditures in 2d quarter, 1877.	72 25
10	T. S. Case	Postmaster at Kansas City, Mo., for amount paid on account of railway mail service in 4th quarter, 1877.	45 00
19	F. W. Palmer	Postmaster at Chicago, Ill., for amount paid for horse-hire in 3d quarter, 1877.	60 00
19	D. T. Hunt	Postmaster at Rochester, N. Y., for amount paid for ice in 3d quarter, 1877.	10 00
19	J. H. Burnham	Postmaster at Hartford, Conn., for amount paid for ice and water-rent in 3d quarter, 1877.	16 63
19	G. R. Wahle	Postmaster at Cincinnati, Ohio, for amount paid for ice in 2d and 3d quarters, 1877.	24 28
22	P. H. Dowling	Postmaster at Toledo, Ohio, for amount paid on account of railway mail service in 4th quarter, 1877.	15 35

No. 5.—Statement in detail of miscellaneous payments, &c.—Continued.

Date.	To whom allowed.	For what object.	Amount.
1878.			
Jan. 23	P. J. Popple.....	Postmaster at Dunkirk, N. Y., for amount paid on account of railway mail service in 4th quarter, 1877.	\$37 50
23	G. R. Wahle	Postmaster at Cincinnati, Ohio, for amount paid on account of railway mail service in 4th quarter, 1877.	36 38
23	M. L. Ross	Postmaster at Newport, Ky., for amount paid on account of railway mail service in 4th quarter, 1877.	33 39
23	F. W. Palmer	Postmaster at Chicago, Ill., for miscellaneous expenditures in 4th quarter, 1877.	75 00
25	Benjamin Conley	Postmaster at Atlanta, Ga., for amount paid on account of railway mail service in 4th quarter, 1877.	304 46
25	J. T. Woolfolk	Postmaster at Jackson, Tenn., for amount paid on account of railway mail service in 4th quarter, 1877.	30 00
29	C. J. Rawling	Postmaster at Wheeling, W. Va., for miscellaneous expenditures in 3d and 3d quarters, 1877.	9 76
29	C. B. Sabin	Postmaster at Galveston, Tex., for miscellaneous expenditures in 3d quarter, 1877.	1 90
29	V. C. Thompson	Postmaster at Louisville, Ky., for miscellaneous expenditures in 3d quarter, 1877.	29 44
29	N. B. Sherwin	Postmaster at Cleveland, Ohio, for miscellaneous expenditures in 3d quarter, 1877.	23 30
29	J. W. Knowlton	Postmaster at Bridgeport, Conn., for miscellaneous expenditures in 3d quarter, 1877.	4 73
29	A. L. Snowden	Postmaster at Philadelphia, Pa., for miscellaneous expenditures in 1st, 2d, and 3d quarters, 1877.	264 31
29	A. C. Chase	Postmaster at Syracuse, N. Y., for amount paid on account of railway mail service in 4th quarter, 1877.	62 50
29	C. J. Filley	Postmaster at Saint Louis, Mo., for miscellaneous expenses in 3d quarter, 1877.	3 00
29	.....do	Postmaster at Saint Louis, Mo., for amount paid on account of railway mail service in 4th quarter, 1877.	42 80
Feb. 2	F. W. Kiel	Postmaster at Fort Wayne, Ind., for miscellaneous expenditures in 2d quarter, 1877.	5 80
2	C. C. Talbot	Postmaster at Brooklyn, N. Y., for miscellaneous expenditures in 2d quarter, 1877.	6 21
4	E. C. Sumner	Postmaster at Denver, Colo., for miscellaneous expenditures in 2d quarter, 1876.	19 00
4	W. Bryan	Postmaster at Hudson, N. Y., for miscellaneous expenditures in 2d quarter, 1877.	4 84
4	F. H. Silingsly	Postmaster at Rouse's Point, N. Y., for amount paid for sealing wax in 3d quarter, 1877.	4 40
9	C. P. Carpenter (2d)	Postmaster at Saint Johnsbury, Vt., for miscellaneous expenditures in 4th quarter, 1877.	2 25
12	C. J. Filley	Postmaster at Saint Louis, Mo., for miscellaneous expenditures in 1st and 3d quarters, 1877.	9 60
12	E. C. Sumner	Postmaster at Denver, Colo., for miscellaneous expenditures in 3d and 4th quarters, 1877.	5 00
12	C. H. Hopkins	Postmaster at Utica, N. Y., for miscellaneous expenditures in 2d quarter, 1877.	2 80
6	J. M. Schemerhorn	Postmaster at Buffalo, N. Y., for amount paid for ice in 3d quarter, 1877.	5 00
12	D. F. Pickering	Postmaster at Elmira, N. Y., for miscellaneous expenditures in 2d and 3d quarters, 1877.	5 75
12	W. H. Craig	Postmaster at Albany, N. Y., for miscellaneous expenditures in 3d quarter, 1877.	4 00
13	C. C. Talbot	Postmaster at Brooklyn, N. Y., for miscellaneous expenditures in 2d quarter, 1877.	27 20
15	P. H. Dowling	Postmaster at Toledo, Ohio, for amount paid on account of railway mail service in 1st quarter, 1878.	5 31
15	George Parker	Postmaster at Poughkeepsie, N. Y., for miscellaneous expenditures in 2d quarter, 1877.	2 86
23	J. F. Wilson	Postmaster at Lynchburgh, Va., for amount paid on account of railway mail service in 4th quarter, 1877.	25 00
23	William Bryan	Postmaster at Hudson, N. Y., for miscellaneous expenditures in 2d quarter, 1877.	36 00
Mar. 4	F. W. Kunst	Postmaster at Grafton, W. Va., for amount paid on account of railway mail service in 4th quarter, 1877.	45 00
25	J. F. Beach	Postmaster at Saint Joseph, Mo., for amount paid for ice in 2d, 3d, and 4th quarters, 1877.	25 40
Apr. 2	T. L. James	Postmaster at New York, N. Y., for amount paid on account of railway mail service in 1st quarter, 1878.	193 33

No. 5.—*Statement in detail of miscellaneous payments, &c.*—Continued.

Date.	To whom allowed.	For what object.	Amount.
1878.			
Apr. 16	Benjamin Conley	Postmaster at Atlanta, Ga., for amount paid on account of railway mail service in 1st quarter, 1878.	\$219 85
16	P. J. Popple	Postmaster at Dunkirk, N. Y., for amount paid on account of railway mail service in 1st quarter, 1878.	37 50
18	J. P. Woolfolk	Postmaster at Jackson, Tenn., for amount paid on account of railway mail service in 1st quarter, 1878.	30 00
23	A. C. Chase	Postmaster at Syracuse, N. Y., for amount paid on account of railway mail service in 1st quarter, 1878.	62 50
23	P. H. Dowling	Postmaster at Toledo, Ohio, for amount paid on account of railway mail service in 1st quarter, 1878.	70 66
27	Thomas P. Taylor	Postmaster at Chattanooga, Tenn., for miscellaneous expenditures in 1st quarter, 1877.	10 00
May 1	E. S. Tobey	Postmaster at Boston, Mass., for amount paid on account of railway mail service in 1st quarter, 1878.	114 15
1	T. S. Case	Postmaster at Kansas City, Mo., for amount paid on account of railway mail service in 1st quarter, 1878.	45 00
2	J. P. Loge	Postmaster at Cincinnati, Ohio, for amount paid on account of railway mail service in 1st quarter, 1878.	203 66
4	C. F. W. Kunst	Postmaster at Grafton, W. Va., for amount paid on account of railway mail service in 1st quarter, 1878.	45 00
4	C. I. Filley	Postmaster at Saint Louis, Mo., for amount paid on account of railway mail service in 1st quarter, 1878.	82 73
15	J. M. Schermerhorn	Postmaster at Buffalo, N. Y., for miscellaneous expenditures in 2d, 3d, and 4th quarters, 1877.	25 00
16	W. M. Haycock	Postmaster at Calais, Me., for amount paid for sealing-wax in 1st quarter, 1878.	2 00
23	A. L. Darnell	Postmaster at Sherman, Tex., for amount paid for repairs of safe in 4th quarter, 1877.	31 70
25	T. F. Robley	Postmaster at Fort Scott, Kans., for amount paid on account of railway mail service in 1st quarter, 1878.	37 50
June 28	James Coey	Postmaster at San Francisco, Cal., for amount paid on account of railway mail service in 1st quarter, 1878.	27 75
July 2	T. L. James	Postmaster at New York, N. Y., for amount paid for printing schedules of foreign mail steamers May, 1878.	56 00
3	.....do	Postmaster at New York, N. Y., for amount paid on account of railway mail service in 2d quarter, 1878.	109 50
18	.....do .....	.....do	1 40
18	.....do	Postmaster at New York, N. Y., for amount paid for miscellaneous expenditures in 2d quarter, 1878.	455 76
25	E. S. Tobey	Postmaster at Boston, Mass., for amount paid on account of railway mail service in 2d quarter, 1878.	5 05
26	P. J. Popple	Postmaster at Dunkirk, N. Y., for amount paid on account of railway mail service in 2d quarter, 1878.	37 50
26	A. C. Chase	Postmaster at Syracuse, N. Y., for amount paid on account of railway mail service in 2d quarter, 1878.	62 50
30	Benjamin Conley	Postmaster at Atlanta, Ga., for amount paid on account of railway mail service in 2d quarter, 1878.	69 25
Aug. 2	J. P. Woolfolk	Postmaster at Jackson, Tenn., for amount paid on account of railway mail service in 2d quarter, 1878.	30 00
2	B. Conley	Postmaster at Atlanta, Ga., for amount paid on account of mail depredations and special agent in 2d quarter, 1878.	75 00
2	C. F. W. Kunst	Postmaster at Grafton, W. Va., for amount paid on account of railway mail service in 2d quarter, 1878.	45 00
2	J. P. Loge	Postmaster at Cincinnati, Ohio, for amount paid on account of railway mail service in 2d quarter, 1878.	406 20

No. 5.—Statement in detail of miscellaneous payments, &c.—Continued.

Date.	To whom allowed.	For what object.	Amount.
1878.			
Aug. 2	P. H. Dowling	Postmaster at Toledo, Ohio, for amount paid on account of railway mail service in 2d quarter, 1878.	\$21 40
2	N. B. Sherwin	Postmaster at Cleveland, Ohio, for amount paid on account of railway mail service in 2d quarter, 1878.	34 25
2	C. I. Filley	Postmaster at Saint Louis, Mo., for amount paid on account of railway mail service in 2d quarter, 1878.	72 95
2	T. F. Robley	Postmaster at Fort Scott, Kans., for amount paid on account of railway mail service in 2d quarter, 1878.	37 50
2	W. F. Palmer	Postmaster at Chicago, Ill.	10 30
17	James Coey	Postmaster at San Francisco, Cal., for amount paid on account of railway mail service in 2d quarter, 1878.	13 62
17	J. R. Winchell	Postmaster at Hannibal, Mo., for miscellaneous expenditures in 2d quarter, 1878.	336 66
31	J. Pickett	Postmaster at Worcester, Mass., for miscellaneous expenditures in 2d quarter, 1878.	74 77
Sept. 5	H. A. Miller	Postmaster at Camden, Ark., for amount paid for telegraphing in 2d quarter, 1878.	1 15
6	T. L. Case	Postmaster at Kansas City, Mo., for amount paid on account of railway mail service in 2d quarter, 1878.	200 00
	Total		5,492 59

RECAPITULATION.

Amounts allowed to the postmasters at the principal offices of the United States credited in quarterly accounts current for incidental expenses of such offices actually and necessarily incurred, such as office repairs, gas-fittings, telegrams, and other miscellaneous expenses, and charged to "miscellaneous account" office of the First Assistant Postmaster-General.

Third quarter, 1877	\$14,586 92
Fourth quarter, 1877	18,787 22
First quarter, 1878	14,793 71
Second quarter, 1878	14,625 04
Total	62,792 89
Amounts allowed postmasters and others, credited on general accounts	\$5,492 59
Amount paid by warrant	4,839 36
Amount paid by draft	843 15
	11,164 10
Total	73,887 59
Deduct amount of fares charged to inland transportation	54 60
	73,832 99

Statement in detail of miscellaneous payments made by the Post-Office Department for the fiscal year ended June 30, 1878, and charged to "Miscellaneous, Postmaster-General."

AMOUNT PAID BY WARRANTS.

Date.	To whom paid.	For what object.	Amount.
1877.			
Aug. 3	J. L. French	For expenses at Old Point Comfort, to attend postal convention, July 26, 1877.	\$5 05
8	W. C. Bryant & Co.	For one year's subscription to New York Daily Evening Post.	9 00
7	T. H. Brooks, publisher Daily Call.	For one year's subscription to same	3 00
8	The Evening Star Newspaper Company.	For one year's subscription to daily Star	6 00
2	The Capital Publishing Company.	For one year's subscription to the Capital	2 50
8	The Gazette, Baltimore	For one year's subscription to the Gazette	6 00
8	The Times, Philadelphia	For one year's subscription to the Daily Times	6 00
8	J. W. Forney, publisher of the Press.	For one year's subscription to the Daily Press	5 75
8	The New Yorker Staats-Zeitung.	For one year's subscription to the Daily New Yorker Staats-Zeitung.	9 00
8	The Post Publishing Company, Boston.	For one year's subscription to the Daily Post	10 00
10	The Nation, New York	For one year's subscription to the Daily Nation	5 20
10	The Journal, Boston	For one year's subscription to the Daily Journal	9 00
10	The World, New York	For one year's subscription to the Daily World	9 50
10	The New York Herald	For one year's subscription to the Daily Herald	10 00
10	L. W. England, publisher New York Sun.	For one year's subscription to the Daily Sun	6 50
10	Cincinnati Volksblatt	For one year's subscription to the Daily Volksblatt.	11 20
10	To Inter-Ocean, Chicago	For one year's subscription to the Daily Inter-Ocean.	9 00
10	W. F. Storey, publisher of the Times, Chicago.	For one year's subscription to the Daily Times	13 00
10	L. N. Burritt, publisher of Sunday Herald, Washington, D. C.	For one year's subscription to the Sunday Herald ..	3 00
14	Geo. Knapp & Co., publishers.	For one year's subscription to the Missouri Republican, Saint Louis.	12 00
15	The Arkansas Gazette	For one year's subscription to the Daily Arkansas Gazette.	10 00
15	W. J. Murtagh, publisher of the National Republican.	For one year's subscription to the Daily National Republican.	6 00
Sept. 3	M. Halstead & Co., publishers.	For one year's subscription to the Daily and Sunday Commercial.	14 00
5	Holbrook & Co., publishers.	For one year's subscription to the Daily New Orleans Picayune.	13 00
29	W. J. Murtagh, publisher.	For one year's subscription to the Daily National Republican for offices of Assistant Postmasters-General, superintendent of foreign mails, and disbursing clerk.	40 00
Oct. 12	The Nation Company, Washington, D. C.	For one year's subscription to the Daily Nation	5 28
Nov. 7	R. W. Gurley, superintendent of letter-carriers.	As agent of Post-Office Department, to visit the large cities and confer with special agents of department as to reduction of expenses of clerk-hire in those offices, for his actual expenses.	100 00
14	Faran & McLean, proprietors.	For one year's subscription to the Cincinnati Enquirer.	14 00
16	Geo. C. Maynard	For building telephone-line from Post-office Department to the telegraph-office and for rent of telephone one year.	82 00
22	Ralph Jefferson	Agent for Post-Office Department, for traveling expenses, including railroad fares and board bills, during the month of December, 1877.	55 13
1878.			
Jan. 26	Montgomery Advertiser	For one year's subscription to Montgomery Daily Advertiser.	10 00
30	Keppler & Schwarzman	For one year's subscription to the newspaper Puck.	5 00
	Total paid by warrant		509 11

AMOUNT PAID BY DRAFT.

1877.			
Aug. 11	E. B. Martindale	For one year's subscription to the Daily Indianapolis Journal.	\$14 00
11	Sentinel Company	For one year's subscription to the Daily Indianapolis Sentinel.	10 00
11	Dawson & Co.	For one year's subscription to the Albany Evening Journal.	9 00

REPORT OF THE POSTMASTER-GENERAL.

Statement in detail of miscellaneous payments made, &c.—Continued.

Date.	To whom paid.	For what object.	Amount.
1877.			
Aug. 11	Hawley, Goodrich & Co.	For one year's subscription to the Daily Courant...	\$8 00
13	Standard Association	For one year's subscription to the Daily Standard...	7 00
13	Springfield Republican	For one year's subscription to the Daily Springfield Republican.	9 00
11	Riordon, Dawson & Co.	For one year's subscription to Daily News and Courier, Charleston, S. C.	10 00
13	Knowles, Anthony & Danielson.	For one year's subscription to the Daily Journal, Providence, R. I.	8 00
13	James R. Barr & Co.	For one year's subscription to the Daily Post, Pittsburgh, Pa.	9 00
13	Morning Journal and Courier	For one year's subscription to the Daily Journal and Courier, New Haven, Conn.	8 00
17	Detroit Free Press	For one year's subscription to the Daily Detroit Free Press, Michigan.	10 00
30	L. F. Harter, treasurer Post Company.	For one year's subscription to the Daily Detroit Post, Michigan.	10 00
30	Sprague, Owen & Nash	For one year's subscription to the Kennebec Journal, Augusta, Me.	7 00
20	A. H. Bissell	For expenses while on special duty by order of Third Assistant Postmaster-General.	75 00
Nov. 7	Ralph Jefferson	For expenses while on special duty by order of Postmaster-General, under act of Congress March 3, 1877.	100 00
8	Frank L. Freeman	For expenses to New York as an expert in the case of Campbell vs. Postmaster New York.	31 00
11	R. W. Gurley	For expenses to Boston, New Haven, Hartford, and Providence in relation to reduction of clerk hire.	15 35
15	James H. Marr	For expenses to Philadelphia, New York, and Brooklyn in relation to reduction of clerk hire.	50 00
1878.			
Jan. 25	A. H. Bissell	For expenses while on special duty under act of Congress March 3, 1877, by order of Postmaster-General.	40 00
Feb. 6	W. A. Knapp	For expenses while on special duty by order of Postmaster-General.	59 90
9	A. H. Bissell	For expenses while on special duty by order of Postmaster-General.	30 00
12	James N. Tyner	For expenses in trip to New York by request of Postmaster-General.	44 50
	Total paid by draft		565 35
	Total paid by warrant		509 11
	Total miscellaneous, Postmaster-General		1,074 46

Statement in detail of miscellaneous payments made by the department for the fiscal year ended June 30, 1878, and charged to "Miscellaneous, Third Assistant Postmaster-General."

Date.	To whom paid.	For what object.	Amount.
1878.			
Jan. 2	The Plimpton Manufacturing Company, Hartford, Conn.	For stationery, &c., furnished to the stamped-envelope agency for the Post-Office Department during the fiscal year ended June 30, 1876.	\$87 19

OFFICE OF THE AUDITOR OF THE TREASURY
FOR THE POST-OFFICE DEPARTMENT, October 29, 1878.

J. M. McGREW, Auditor.

No. 6.—Statement showing the condition of the account, with each item of the appropriation, for the service of the Post-Office Department for the fiscal year ended June 30, 1878, on the 30th day of September, 1878.

Title of appropriation.	Amount of ap- propriation, including spe- cial acts.	Expended.	Balance unex- pended.	Excess of ex- penditures.
Compensation of postmasters	\$7,725,000 00	\$7,966,921 37		\$241,921 37
Compensation of clerks for post-offices	3,340,000 00	3,325,493 02	\$14,501 98	
Compensation of letter-carriers and incidental expenses	1,825,000 00	1,824,044 07	955 93	
Wrapping-paper	22,500 00	16,509 00	5,991 00	
Twine	50,000 00	42,163 47	7,836 53	
Post-marking and canceling stamps	9,000 00	8,999 85	13	
Letter-balances	5,000 00	3,142 00	1,858 00	
Rent, light, and fuel for post-offices	400,000 00	376,898 85	23,101 15	
Stationery	55,000 00	37,574 56	17,425 44	
Furniture for post-offices	20,000 00	10,717 92	9,282 08	
Miscellaneous, office of First Assistant Post- master-General	80,000 00	73,611 63	6,388 37	
Inland mail transportation, railroads	9,279,410 87	9,324,139 09		44,728 22
Inland mail transportation, star	6,745,160 87	6,400,671 69	344,489 18	
Compensation of railway post-office clerks	1,937,000 00	1,936,534 39	475 61	
Compensation of route-agents	1,000,000 00	996,254 82	3,745 18	
Compensation of mail-route messengers	155,000 00	154,592 97	407 03	
Compensation of local agents	110,000 00	109,291 64	708 36	
Compensation of mail-messengers	670,000 00	644,620 36	25,379 64	
Mail-locks and keys	16,000 00	890 00	15,110 00	
Mail-bags and catchers	200,000 00	140,261 74	59,738 26	
Post-route maps, including proceeds of sales	30,855 80	30,855 80		
Mail depredations and special agents, including fees to attorneys, &c.	135,000 00	134,999 85	15	
Postage-stamps	150,000 00	76,037 35	73,962 65	
Distribution of postage-stamps	6,900 00	6,697 43	202 52	
Stamped envelopes and newspaper-wrappers	600,000 00	474,131 64	125,868 36	
Distribution of stamped envelopes and new- paper-wrappers	14,150 00	13,813 47	336 53	
Postal cards	300,000 00	133,579 56	166,420 44	
Distribution of postal cards	6,100 00	5,690 34	409 66	
Registered-package envelopes, locks, and seals	40,000 00	23,294 25	16,775 75	
Official envelopes for postmasters and dead-let- ter envelopes	25,000 00	16,140 28	8,859 72	
Ship, steamboat, and way letters	7,500 00	2,388 14	5,111 86	
Engraving, printing, and binding drafts and warrants	1,500 00	529 50	970 50	
Advertising	60,000 00	15,854 54	44,145 46	
Miscellaneous, office of Postmaster-General	1,500 00	1,074 46	425 54	
Foreign mail transportation	240,000 00	217,809 55	22,190 45	
Balance due foreign countries	50,000 00	17,493 94	32,506 06	
Delegates to International Postal Congress, Paris, France	4,000 00	4,000 00		
Special commission on railway mail transpor- tation	6,000 00	6,000 00		
Total	34,622,577 54	33,874,647 59	1,034,579 51	286,649 59

J. M. McGREW
Auditor.

OFFICE OF THE AUDITOR OF THE TREASURY
FOR THE POST-OFFICE DEPARTMENT, October 28, 1878.

No. 7.—Table showing the receipts, expenditures, and net revenue of the post-offices at which the free-delivery system is in operation, for the fiscal year ended June 30, 1878.

Office and State.	Gross revenue.	Office ex-penses.	Free delivery	Total ex-penses.	Net revenue.
Albany, N. Y.	\$122,915 87	\$36,494 13	\$17,948 12	\$54,442 25	\$68,473 62
Allegheny, Pa.	21,844 00	6,343 55	7,899 37	14,242 92	7,601 08
Atlanta, Ga.	34,316 47	13,165 33	4,270 67	17,436 00	16,880 47
Baltimore, Md.	331,672 40	71,305 01	51,517 20	122,822 21	208,850 19
Bangor, Me.	20,368 15	2,465 90	2,852 83	11,318 73	9,049 42
Bloomington, Ill.	23,510 50	8,578 50	4,439 80	13,018 30	10,492 20
Boston, Mass.	446,210 43	239,620 52	126,329 73	365,950 25	580,260 18
Brooklyn, N. Y.	256,524 32	51,467 21	12,742 69	124,209 90	232,314 42
Buffalo, N. Y.	142,452 45	30,027 90	27,607 16	57,635 06	90,223 39
Burlington, Iowa.	31,205 59	7,391 60	4,101 11	11,492 71	19,712 88
Camden, N. J.	15,156 92	6,184 24	4,318 25	10,502 49	4,654 43
Charleston, S. C.	42,957 51	11,709 45	5,880 20	17,589 65	31,367 86
Chicago, Ill.	971,534 38	317,907 25	124,937 37	446,394 62	524,639 76
Cincinnati, Ohio.	417,629 03	91,014 10	59,647 44	150,661 54	266,967 49
Cleveland, Ohio.	179,130 54	35,590 36	28,279 77	63,870 13	115,260 41
Columbus, Ohio.	72,153 97	15,995 06	9,051 39	25,046 45	47,106 52
Covington, Ky.	13,649 02	5,849 67	2,784 97	8,634 64	5,214 38
Davenport, Iowa.	27,992 27	8,892 39	5,169 68	14,059 07	13,933 20
Dayton, Ohio.	47,228 38	12,748 22	8,716 36	21,464 58	25,763 80
Des Moines, Iowa.	42,138 43	9,753 75	4,732 90	14,486 65	27,651 78
Detroit, Mich.	170,264 61	36,059 73	26,307 42	62,367 21	116,497 40
Dubuque, Iowa.	30,409 42	7,660 60	3,564 87	11,225 47	19,183 95
Easton, Pa.	13,901 75	6,841 76	4,385 38	11,207 14	2,694 61
Elizabeth, N. J.	17,419 31	6,493 54	4,550 20	11,043 74	6,375 57
Elmira, N. Y.	24,946 36	9,294 70	4,658 22	13,953 08	10,993 28
Erie, Pa.	24,189 77	9,124 24	5,289 02	14,413 26	9,775 91
Evansville, Ind.	26,940 63	10,337 91	5,198 61	15,536 52	11,404 11
Fall River, Mass.	23,174 64	9,095 91	2,427 33	11,523 24	11,651 40
Fort Wayne, Ind.	24,006 13	10,230 46	5,437 53	15,667 99	8,338 14
Grand Rapids, Mich.	42,923 02	10,921 94	5,249 74	16,771 68	26,151 34
Harrisburgh, Pa.	57,180 31	15,196 90	4,185 55	19,386 45	37,793 86
Hartford, Conn.	92,109 12	23,147 09	9,059 52	32,206 61	59,902 51
Hoboken, N. J.	9,433 29	3,400 00	2,945 04	6,345 04	3,088 25
Indianapolis, Ind.	105,324 92	31,147 67	24,085 26	55,249 93	50,074 99
Jersey City, N. J.	42,400 33	8,850 43	9,256 41	18,707 24	24,093 09
Kansas City, Mo.	66,363 54	17,170 12	8,178 28	25,348 40	41,015 14
La Fayette, Ind.	18,061 09	8,957 86	3,667 21	12,625 07	5,436 02
Lancaster, Pa.	23,277 27	7,067 27	3,487 40	9,554 67	13,722 60
Lawrence, Mass.	21,455 11	7,259 50	5,785 05	13,054 55	8,400 56
Leavenworth, Kans.	20,531 84	8,265 75	3,491 24	11,756 99	8,774 85
Louisville, Ky.	142,232 58	27,405 82	25,211 69	53,017 51	95,215 05
Lowell, Mass.	44,208 72	9,743 50	7,243 89	17,027 39	27,181 33
Lynn, Mass.	27,613 96	6,187 30	5,372 46	11,559 76	16,054 20
Manchester, N. H.	21,222 51	6,548 67	3,641 40	10,200 07	10,992 44
Memphis, Tenn.	59,911 46	19,093 49	8,905 44	27,999 93	31,912 53
Milwaukee, Wis.	143,217 94	24,640 04	22,435 44	47,075 42	96,142 50
Minneapolis, Minn.	44,299 55	15,713 25	6,824 40	22,537 65	22,361 90
Mobile, Ala.	37,529 62	14,514 47	3,448 58	17,963 03	19,566 59
Nashville, Tenn.	55,426 55	17,741 64	7,070 60	24,812 24	30,614 31
Newark, N. J.	86,748 36	12,998 93	19,213 30	32,212 23	54,536 13
New Bedford, Mass.	25,794 53	5,911 06	5,182 45	11,093 51	14,701 02
New Haven, Conn.	78,207 91	14,487 47	10,117 25	24,604 72	53,603 19
New Orleans, La.	193,406 13	56,573 91	36,613 33	93,186 54	100,219 59
New York, N. Y.	2,566,490 30	809,196 29	334,050 76	1,143,186 05	1,723,304 15
Norfolk, Va.	30,925 97	9,112 23	3,709 16	12,821 39	18,104 58
Omaha, Nebr.	34,085 11	13,581 60	4,434 85	18,020 45	20,064 66
Oswego, N. Y.	16,640 36	5,969 12	4,421 44	10,390 56	6,249 80
Paterson, N. J.	19,598 79	5,843 67	5,369 93	11,213 60	8,385 19
Peoria, Ill.	40,709 95	10,233 13	5,694 94	16,126 12	24,583 83
Petersburgh, Va.	16,149 49	6,066 86	3,571 17	9,638 03	6,511 46
Philadelphia, Pa.	995,981 55	192,470 14	219,424 78	412,294 92	583,586 63
Pittsburgh, Pa.	213,961 81	47,302 46	28,025 33	75,394 19	138,567 62
Portland, Me.	78,560 46	21,358 15	7,329 27	28,687 42	49,873 04
Pottsville, Pa.	11,044 16	5,286 07	2,945 00	8,231 07	2,813 09
Poughkeepsie, N. Y.	29,170 83	8,661 22	4,212 51	12,874 33	16,296 60
Providence, R. I.	192,134 33	19,537 19	16,551 46	36,088 65	16,045 68
Quincy, Ill.	29,916 78	10,338 13	5,126 53	15,464 66	14,452 12
Reading, Pa.	24,534 72	7,110 70	6,063 39	13,174 09	11,360 63
Richmond, Va.	73,269 06	12,792 92	11,300 92	30,093 90	43,175 16
Rochester, N. Y.	109,097 40	21,935 22	16,508 66	38,443 88	71,253 92
Saint Joseph, Mo.	36,302 92	11,900 79	4,762 07	16,662 86	19,640 06
Saint Louis, Mo.	465,357 72	114,784 43	89,926 73	204,715 16	260,642 56
Saint Paul, Minn.	54,555 63	13,645 40	6,979 51	20,624 91	34,330 72
Salmon, Mass.	20,078 22	6,356 42	4,307 39	10,663 81	9,415 01
San Francisco, Cal.	405,754 67	83,920 72	42,376 84	126,297 56	279,457 11
Savannah, Ga.	37,320 00	15,790 50	4,388 83	20,179 42	17,140 58
Springfield, Ill.	23,020 94	8,069 80	3,606 62	11,675 92	11,945 12
Springfield, Mass.	57,438 21	11,100 26	5,723 71	16,823 97	40,524 24
Syracuse, N. Y.	68,518 77	16,298 33	11,634 26	27,928 50	41,586 12

No. 7.—Table showing the receipts, expenditures, and net revenue, &c.—Continued.

Office and State.	Gross revenue.	Office expenses.	Free delivery.	Total expenses.	Net revenue.
Toledo, Ohio	\$84,480 93	\$14,199 57	\$11,304 77	\$25,504 34	\$58,976 59
Trenton, N. J.	34,214 72	7,713 96	3,988 86	11,702 82	22,511 90
Troy, N. Y.	66,770 36	16,645 19	10,611 01	27,256 20	39,514 16
Utica, N. Y.	46,782 44	10,271 17	9,492 30	19,763 47	27,018 97
Washington, D. C.	172,097 66	98,148 09	31,668 81	130,016 90	42,080 76
Wheeling, W. Va.	28,583 28	10,655 33	4,416 83	15,072 16	13,511 12
Wilmington, Del.	29,802 66	7,688 06	6,994 75	14,682 81	15,119 85
Worcester, Mass.	64,464 11	12,048 43	8,350 02	20,398 45	44,065 66

J. M. MCGREW, Auditor.

OFFICE OF THE AUDITOR OF THE TREASURY
FOR THE POST-OFFICE DEPARTMENT, October 29, 1878.

No. 8.—Statement showing the transactions of the Money-Order Office

States and Territories.	Domestic.					
	Balance from last year.	Number of orders issued.	Amount of orders issued.	Fees.	Premium.	Drafts and deposits received from postmasters.
Alabama.....	\$14, 129 05	81, 178	\$1, 312, 512 08	\$10, 800 65	\$78 30	\$743, 188 27
Arizona.....	15, 630 19	11, 437	387, 397 23	2, 202 10		9, 500 00
Arkansas.....	19, 762 27	71, 422	1, 538, 927 04	10, 769 75		947, 677 18
California.....	20, 858 77	106, 233	1, 864, 504 39	14, 746 65		1, 368, 919 00
Colorado.....	10, 816 02	46, 435	760, 838 65	6, 224 70		461, 978 00
Connecticut.....	6, 760 25	85, 502	1, 079, 822 06	10, 339 55		331, 971 00
Dakota.....	5, 619 81	18, 858	373, 273 65	2, 717 05		3, 950 00
Delaware.....	1, 171 20	11, 600	143, 532 11	1, 393 95		6, 100 00
District of Columbia.....	10, 286 47	31, 092	508, 438 74	4, 075 85		1, 027, 393 09
Florida.....	23, 641 60	42, 859	860, 859 18	6, 250 20		174, 865 46
Georgia.....	48, 107 62	99, 276	1, 501, 038 29	12, 941 35	76 41	1, 227, 641 00
Idaho.....	909 73	8, 698	241, 881 76	1, 501 95		57, 431 00
Illinois.....	75, 603 62	553, 768	7, 127, 840 21	67, 648 30	5 80	7, 052, 706 04
Indiana.....	25, 321 08	265, 825	3, 270, 321 98	31, 939 25		1, 245, 739 80
Indian Territory.....	292 49	2, 362	53, 006 56	366 00		
Iowa.....	45, 651 39	362, 184	4, 696, 649 71	46, 475 65		2, 156, 073 46
Kansas.....	28, 585 88	194, 058	3, 076, 321 20	25, 624 05	81 34	1, 101, 483 00
Kentucky.....	11, 315 14	86, 440	1, 357, 402 08	12, 198 95		908, 514 19
Louisiana.....	58, 492 83	64, 275	1, 438, 300 89	9, 806 90	300 00	2, 546, 132 44
Maine.....	15, 668 42	87, 287	1, 312, 444 49	10, 613 60	4 42	722, 966 00
Maryland.....	8, 341 73	62, 121	906, 633 01	7, 892 15		1, 052, 356 00
Massachusetts.....	20, 948 87	188, 651	2, 723, 603 79	23, 790 40	14 00	1, 768, 733 97
Michigan.....	41, 405 40	281, 732	3, 662, 573 55	34, 336 00		1, 741, 406 00
Minnesota.....	20, 013 56	142, 355	1, 954, 121 65	17, 842 80		1, 007, 936 00
Mississippi.....	24, 961 65	102, 191	1, 637, 837 96	13, 592 85	31 12	32, 556 57
Missouri.....	44, 618 22	225, 244	3, 211, 763 40	24, 453 65		5, 167, 070 40
Montana.....	9, 461 39	11, 529	215, 455 56	1, 629 25		132, 990 00
Nebraska.....	20, 957 25	88, 660	1, 421, 492 17	11, 730 75		1, 271, 033 00
Nevada.....	4, 681 72	20, 695	444, 012 76	3, 106 05		
New Hampshire.....	5, 992 00	52, 293	677, 003 77	6, 399 35		81, 985 00
New Jersey.....	5, 900 15	67, 615	908, 920 70	8, 363 50		257, 679 00
New Mexico.....	4, 861 93	6, 170	131, 476 92	929 35	66 59	99, 318 72
New York.....	90, 549 08	427, 584	5, 828, 426 30	53, 141 70	121 51	16, 986, 266 20
North Carolina.....	18, 333 45	84, 110	1, 426, 542 07	11, 426 05	10	198, 802 00
Ohio.....	42, 780 04	417, 359	5, 030, 420 90	49, 534 05	14 56	3, 288, 880 17
Oregon.....	31, 885 22	28, 012	493, 475 04	3, 940 05		391, 428 56
Pennsylvania.....	39, 304 94	305, 466	3, 871, 503 78	37, 081 05	3 37	2, 700, 636 25
Rhode Island.....	1, 890 78	26, 847	375, 882 74	3, 349 40		90, 699 00
South Carolina.....	14, 726 27	55, 651	842, 607 35	7, 923 35	189 47	455, 695 12
Tennessee.....	19, 116 09	113, 662	1, 933, 421 37	15, 408 10		1, 695, 734 10
Texas.....	62, 927 75	218, 366	4, 183, 392 48	29, 492 65	270 56	2, 731, 982 56
Utah.....	7, 550 49	12, 718	270, 641 57	1, 907 25	1 00	155, 135 55
Vermont.....	7, 591 28	51, 836	636, 830 61	6, 251 75		114, 498 00
Virginia.....	12, 893 43	82, 466	1, 189, 955 75	10, 496 40		1, 177, 531 00
Washington.....	4, 793 72	10, 476	231, 773 15	1, 617 25		1, 989 00
West Virginia.....	4, 484 91	31, 152	413, 175 29	3, 872 90	1 96	45, 025 00
Wisconsin.....	40, 970 33	255, 097	3, 674, 116 99	32, 366 10	57 27	2, 147, 039 00
Wyoming.....	3, 737 03	12, 340	219, 491 97	1, 690 60		275 00
Total.....	1, 055, 543 45	5, 613, 117	81, 442, 364 87	715, 261 20	1, 377 78	66, 882, 803 02

of the United States during the fiscal year ended June 30, 1878.

Transferred from post- age fund.	Domestic.			International.					
	Canadian.			British.			German.		
	Number of orders issued.	Amount of orders issued.	Fees.	Number of orders issued.	Amount of orders issued.	Fees.	Number of orders issued.	Amount of orders issued.	Fees.
\$2,527 41	12	\$603 35	\$12 80	99	\$2,024 05	\$59 75	275	\$6,548 26	\$176 90
85 67	13	404 20	8 60	83	2,110 75	55 00	23	885 00	22 75
360 16	18	345 53	7 80	55	1,185 75	33 00	101	1,519 00	42 30
10,743 56	719	17,175 44	386 40	2,577	40,322 57	1,322 25	2,269	51,893 52	1,379 40
2,066 00	95	2,710 31	39 20	2,526	52,777 76	1,476 50	194	3,873 50	103 20
12,207 95	271	4,726 32	111 80	1,476	23,189 12	761 50	702	14,547 77	389 45
429 02	4	78 50	1 80	29	514 20	15 25	28	492 50	13 00
3,018 10	29	910 95	19 60	131	2,598 01	75 00	84	2,962 24	76 35
	142	2,899 70	70 40	440	6,905 20	214 75	405	8,083 75	218 25
539 81	88	2,886 70	59 40	169	5,366 79	141 75	100	2,594 40	68 55
2,297 24	183	5,455 10	116 20	225	4,543 87	133 00	398	11,632 30	306 60
105 07	5	94 00	2 40	100	2,890 88	78 50	30	1,029 50	26 30
57,416 66	768	12,319 21	295 00	4,002	57,607 85	1,787 25	4,908	72,491 04	2,208 75
14,844 27	93	1,189 70	29 80	781	11,328 55	348 25	889	12,836 36	362 25
24,794 22	120	2,114 38	52 00	579	7,964 83	254 25	727	12,023 84	333 50
9,752 63	61	897 80	23 20	267	4,856 81	140 75	135	2,595 35	70 55
7,455 21	114	1,430 10	37 40	333	5,224 21	156 75	524	10,227 24	278 90
1,199 00	98	2,564 20	54 40	334	6,920 45	193 50	432	9,427 55	252 85
7,681 77	314	5,280 17	128 00	570	10,061 24	296 50	86	1,429 86	37 80
6,455 44	104	2,371 63	54 20	572	7,964 79	252 75	1,228	23,136 23	630 05
53,608 78	2,776	53,629 84	1,254 75	5,595	74,946 24	2,394 50	1,292	24,594 68	678 55
14,330 06	1,256	22,368 50	523 00	2,411	36,757 19	1,111 75	1,164	18,185 32	506 70
13,691 37	164	3,573 61	80 20	255	3,571 64	113 00	532	7,414 25	212 95
2,066 50	7	194 35	3 00	80	1,556 75	44 75	46	639 00	18 75
11,860 95	200	3,427 90	79 40	1,025	16,672 01	498 00	1,298	23,195 40	641 00
100 00	29	784 35	17 00	121	3,240 80	87 25	47	1,350 00	35 15
14,030 29	18	275 43	6 20	205	3,283 18	98 75	276	5,055 94	136 50
35 00	101	3,027 05	65 20	246	3,569 45	106 75	138	2,802 60	74 70
6,251 17	161	2,382 40	59 55	483	6,623 04	209 50	77	1,019 28	29 25
23,866 98	200	3,766 50	90 60	2,673	32,329 49	1,080 25	1,537	24,458 53	683 70
29 71	1	10 00	20 3	3	55 00	1 75	40	1,120 90	30 20
103,372 03	2,698	50,164 98	1,186 20	14,096	198,361 31	6,223 25	14,626	258,172 77	7,202 00
3,243 45	48	1,312 63	29 00	67	1,141 47	34 75	193	5,844 97	152 45
84,318 29	638	7,966 94	206 20	2,600	35,631 26	1,126 00	2,416	39,148 94	1,087 10
1,173 81	75	2,043 10	44 40	273	5,246 75	157 00	268	7,661 75	204 90
55,318 87	754	14,833 44	339 20	5,079	64,037 18	2,094 75	2,363	41,543 33	1,140 35
667 00	293	6,823 84	154 20	1,527	21,582 14	673 25	133	2,031 74	57 10
786 03	13	309 29	7 00	37	701 60	90 75	160	3,402 35	89 70
2,233 10	51	664 60	17 20	329	3,524 56	108 00	166	3,331 57	89 90
15,968 65	64	1,495 90	33 20	356	7,393 30	210 50	937	22,010 85	585 50
400 31	9	106 75	2 60	539	6,298 81	209 25	34	939 00	24 50
9,119 92	152	2,246 41	56 20	214	2,943 73	93 25	13	310 80	8 65
5,841 68	65	1,214 87	28 00	414	7,925 17	229 25	317	7,164 11	195 15
	125	4,003 10	64 20	112	2,482 32	68 25	74	2,166 50	56 05
2,514 60	6	83 65	2 20	105	1,577 53	49 00	119	2,462 78	67 65
11,910 59	399	5,631 79	130 20	699	9,242 82	297 00	1,514	20,691 21	591 00
48 00	26	725 92	15 00	71	1,388 90	40 00	16	478 00	12 75
605,832 33	13,586	250,362 43	6,054 50	55,346	807,183 32	25,075 75	43,314	783,416 84	21,610 50

No. 8.—Statement showing the transactions of the Money-Order Office of the

States and Territories.	International—Continued.						Balance due postmasters.
	Swiss.			Italian.			
	Number of orders issued.	Amount of orders issued.	Fees.	Number of orders issued.	Amount of orders issued.	Fees.	
Alabama	3	\$77 00	\$2 25	12	\$401 25	\$10 75	\$13 28
Arizona							
Arkansas	4	30 50	1 00	11	293 00	7 75	6 73
California	139	2,963 95	82 25	286	7,065 65	191 25	62 67
Colorado	9	126 00	3 75	6	185 00	4 75	124 32
Connecticut	31	538 43	16 25	42	1,260 88	32 75	253 21
Dakota							
Delaware	5	70 00	1 75	1	31 00	1 00	1 76
District of Columbia	47	631 98	20 25	80	2,131 47	58 00	
Florida	11	440 40	11 50	8	279 80	7 25	21 01
Georgia	23	617 40	16 50	39	1,402 60	36 25	71 98
Idaho	1	20 00	50				75 22
Illinois	703	13,574 10	388 75	695	22,147 23	577 25	625 88
Indiana	51	1,234 70	35 00	28	684 50	18 00	91 70
Indian Territory							
Iowa	54	1,236 50	34 75	5	135 00	3 50	210 65
Kansas	10	129 60	4 00	1	30 00	75	226 35
Kentucky	14	251 50	6 75	64	1,310 10	36 75	80 12
Louisiana	43	1,031 00	27 75	577	15,794 30	421 00	
Maine	6	160 00	4 25	33	734 21	20 00	135 26
Maryland	21	257 30	8 75	110	2,571 44	71 25	39 20
Massachusetts	126	2,023 27	60 75	378	7,740 36	217 50	416 21
Michigan	130	1,554 09	53 00	35	634 65	22 50	224 94
Minnesota	53	1,598 05	41 75	8	325 00	8 25	
Mississippi	5	73 00	2 25	42	1,442 00	37 25	64 94
Missouri	161	2,730 70	80 50	226	6,221 05	163 50	203 31
Montana							64 38
Nebraska	1	30 00	75	8	385 00	9 75	397 78
Nevada	10	161 00	4 50	4	95 00	2 50	
New Hampshire	3	79 00	2 00	2	45 66	1 50	60 20
New Jersey	48	743 80	21 75	20	218 05	7 25	133 35
New Mexico							
New York	2,210	46,073 57	1,307 75	391	9,711 03	266 50	466 99
North Carolina	1	9 75	25	6	280 00	7 00	68 90
Ohio	197	4,761 81	130 25	99	3,189 00	83 50	1,095 20
Oregon	15	408 75	11 00	1	40 35	1 25	27 62
Pennsylvania	158	2,906 14	87 50	533	12,894 05	342 75	525 86
Rhode Island	6	144 40	4 50	18	351 75	10 25	3 19
South Carolina				3	26 25	1 00	109 16
Tennessee	79	1,249 65	36 00	30	726 00	19 75	87 02
Texas	41	1,297 00	34 50	83	2,528 35	66 00	466 34
Utah	24	746 50	20 00	6	94 00	2 50	
Vermont							146 64
Virginia	3	51 00	1 50	25	640 55	17 25	35 81
Washington							
West Virginia	1	6 00	25	2	50 00	1 25	29 65
Wisconsin	146	2,182 30	68 50	21	753 00	19 50	165 35
Wyoming				10	325 00	9 75	11 27
Total	4,593	92,280 74	2,635 25	3,949	105,433 53	2,816 50	6,914 71

United States during the fiscal year ended June 30, 1878—Continued.

Domestic.					International.		
Number of orders paid.	Amount of orders paid.	Amount of orders repaid.	Transferred to postage fund.	Deposits.	Canadian.		
					Number of orders paid.	Amount of orders paid.	Amount of orders repaid.
35,634	\$648,380 57	\$3,102 26	\$186 06	\$1,413,060 00	11	\$346 52	.....
3,574	143,649 22	2,947 02	.....	245,383 00	.....	.....	.....
27,264	656,333 48	2,359 99	84,582 23	1,741,658 21	20	467 00	.....
62,774	1,546,360 52	14,371 94	.....	1,744,757 00	874	22,553 42	\$15 00
25,652	534,675 96	6,090 81	.....	754,091 86	86	2,505 98	.....
69,777	996,213 86	5,754 98	.....	458,646 17	273	4,954 06	20 00
5,195	120,608 71	2,108 66	.....	252,932 86	9	231 36	.....
7,106	104,547 15	705 57	50 00	48,645 45	157	4,286 17	.....
38,566	585,234 83	3,759 19	.....	947,756 87	82	1,315 88	5 00
17,882	394,054 12	5,340 85	.....	649,706 37	45	1,258 11	.....
74,665	1,224,162 62	2,273 96	667 79	1,514,275 00	22	641 92	.....
1,104	37,893 81	2,147 16	184,212 00	78,902 00	1	15 39	.....
740,205	9,271,290 62	45,983 53	1,308 00	4,971,811 73	1,054	17,871 02	5 25
159,915	2,349,475 33	18,247 29	1,536 00	2,169,502 39	113	1,782 40	.....
206	4,234 46	61 35	.....	48,214 74	.....	.....	.....
238,638	3,646,743 15	23,110 88	1,543 12	3,158,282 60	181	4,944 83	.....
115,038	2,224,952 19	22,301 56	338 31	1,662,470 66	156	4,737 51	15 00
93,034	1,532,374 75	9,132 59	897 10	718,933 27	61	865 67	.....
70,557	1,440,620 40	7,813 44	.....	2,557,584 12	48	899 85	25 00
78,974	1,212,697 31	6,399 71	.....	821,252 00	1,126	18,524 19	10 00
94,491	1,660,701 98	5,071 34	.....	320,713 77	104	1,304 85	30 00
329,335	3,812,016 49	15,568 66	2,982 02	770,749 00	4,178	70,438 70	342 46
201,637	2,963,487 18	22,052 45	407 00	2,454,436 09	1,194	24,067 05	76 50
84,454	1,389,346 11	12,323 48	377 00	1,547,840 00	268	6,609 09	6 00
30,294	518,051 64	10,637 52	100 00	1,148,824 86	7	233 62	.....
322,821	5,643,098 06	20,606 59	.....	2,746,197 22	192	4,418 11	.....
2,759	74,829 68	1,808 25	.....	275,954 00	4	123 59	16 00
48,537	928,619 90	10,021 59	.....	1,757,592 00	70	2,125 21	.....
2,567	72,208 71	2,758 42	.....	375,358 00	52	1,485 06	5 00
45,491	546,135 07	2,902 11	223 00	236,441 87	135	2,436 42	46 00
62,273	969,222 82	6,332 87	828 23	229,631 08	515	6,778 91	39 20
1,174	32,226 10	841 08	.....	197,324 72	.....	.....	.....
1,029,869	11,557,760 62	43,345 57	45,054 54	11,432,904 49	6,004	79,012 19	170 93
34,231	606,270 93	7,044 15	3,623 75	1,021,194 00	19	471 17	.....
479,671	6,140,558 14	33,208 93	65,434 00	2,198,412 99	948	11,635 84	128 00
10,013	274,595 24	2,428 83	.....	621,494 00	174	4,870 36	2 10
377,196	4,614,885 04	25,105 96	4,248 68	2,012,236 82	1,182	17,362 92	141 00
18,187	242,163 69	2,405 49	.....	202,348 00	110	2,165 06	50 00
26,259	424,464 46	4,139 69	15 08	820,284 12	15	373 27	.....
96,563	1,755,141 23	10,048 36	76 00	1,462,363 00	15	206 33	.....
105,952	2,681,859 90	25,467 40	3,691 12	4,243,131 89	59	1,455 85	.....
7,235	140,453 22	980 92	.....	249,666 55	19	658 66	.....
34,404	521,715 14	3,128 01	537 00	219,240 00	145	3,307 03	.....
64,349	1,032,882 19	6,474 64	13 00	1,323,467 00	49	1,214 12	.....
2,474	112,159 36	1,513 12	.....	124,719 56	73	1,541 95	.....
14,047	234,525 54	2,266 06	.....	223,846 13	34	771 97	.....
174,345	2,857,722 57	21,898 18	1,754 85	2,930,705 00	239	5,680 52	38 00
2,214	67,140 78	1,460 15	.....	154,397 87	11	362 80	.....
5,569,341	80,771,455 20	502,455 60	404,369 88	67,969,758 56	20,134	339,184 89	1,166 44

No. 8.—Statement showing the transactions of the Money-Order Office of the

States and Territories.	International—Continued.					
	British.			German.		
	Number of orders paid.	Amount of orders paid.	Amount of orders repaid.	Number of orders paid.	Amount of orders paid.	Amount of orders repaid.
Alabama.....	96	\$532 29	.....	52	\$1,294 43	.....
Arizona.....	38	.....	.....	54	1,852 19	.....
Arkansas.....	645	1,164 86	\$320 00	41	1,024 54	.....
California.....	154	12,771 48	91 50	785	18,767 43	\$48 75
Colorado.....	437	3,685 52	10 00	29	2,283 96	10 00
Connecticut.....	4	7,168 36	125 45	271	6,022 28	22 20
Dakota.....	42	82 28	.....	46	1,185 96	5 00
Delaware.....	130	850 54	.....	156	730 13	.....
District of Columbia.....	53	2,061 42	50 68	156	3,759 38	20 00
Florida.....	63	1,357 23	20 00	47	1,238 46	.....
Georgia.....	3	1,524 99	55 00	96	2,364 80	5 15
Idaho.....	1,435	104 86	.....	8	203 05	.....
Illinois.....	309	27,130 39	178 98	3,300	80,637 17	245 57
Indiana.....	323	6,627 57	19 00	743	16,653 51	139 00
Indian Territory.....	.....	.....	.....	.....	.....	.....
Iowa.....	422	6,707 82	160 00	1,285	31,474 06	75 00
Kansas.....	130	10,420 67	70 00	481	11,968 77	15 00
Kentucky.....	163	2,399 75	.....	325	7,441 57	10 00
Louisiana.....	186	3,282 26	68 50	323	7,662 39	.....
Maine.....	937	4,004 59	1 21	30	644 23	.....
Maryland.....	1,768	3,733 22	41 09	504	11,801 48	14 00
Massachusetts.....	672	27,793 56	398 35	401	8,950 87	23 95
Michigan.....	159	13,314 18	25 10	1,150	26,691 64	1,241 50
Minnesota.....	36	3,385 83	5 00	1,311	32,958 81	142 10
Mississippi.....	418	727 43	.....	28	702 20	10 00
Missouri.....	8	8,774 11	157 70	1,369	32,830 04	66 00
Montana.....	189	272 49	.....	43	1,091 26	.....
Nebraska.....	17	4,295 91	.....	488	12,349 65	45 50
Nevada.....	85	357 46	.....	21	562 80	.....
New Hampshire.....	1,062	1,282 30	14 95	8	148 73	.....
New Jersey.....	2	17,851 94	91 17	1,156	25,277 43	112 75
New Mexico.....	6,696	34 98	.....	3	134 90	.....
New York.....	40	97,929 89	603 87	7,220	145,970 95	531 91
North Carolina.....	1,013	738 00	75 00	32	725 79	33 36
Ohio.....	25	17,970 33	133 76	1,760	39,219 64	213 50
Oregon.....	2,705	395 80	.....	122	3,149 35	10 00
Pennsylvania.....	253	43,072 40	181 93	2,364	51,439 44	104 00
Rhode Island.....	39	4,064 16	15 25	41	820 02	10 00
South Carolina.....	81	675 37	.....	66	1,430 54	.....
Tennessee.....	249	1,212 56	.....	142	3,232 15	.....
Texas.....	133	6,766 94	10 00	593	14,882 53	110 31
Utah.....	64	2,536 26	56 00	45	1,032 04	.....
Vermont.....	244	1,240 48	20 00	4	69 37	11 00
Virginia.....	9	5,345 03	.....	103	2,212 48	52 75
Washington.....	54	173 09	28 00	17	422 12	60 00
West Virginia.....	296	1,067 88	.....	41	906 01	.....
Wisconsin.....	9	5,925 29	25 00	2,174	51,564 22	236 50
Wyoming.....	.....	209 41	.....	2	57 90	.....
Total.....	21,167	363,203 18	2,960 47	29,411	606,812 70	4,526 80

OFFICE OF THE AUDITOR OF THE TREASURY
FOR THE POST-OFFICE DEPARTMENT,
Washington, D. C., October 29, 1878.

United States during the fiscal year ended June 30, 1878—Continued.

International.						Expenses.	Commissions and clerk-hire.	Balance due the United States.	Miscellaneous items.
Swiss.			Italian.						
Number of orders paid.	Amount of orders paid.	Amount of orders repaid.	Number of orders paid.	Amount of orders paid.	Amount of orders repaid.				
2	\$27 25					\$462 65	\$5,251 08	\$15,702 29	
3	83 91				\$230 00	5 05	1,103 72	24,347 15	\$14 14
29	792 82		8	\$231 73		2,356 45	5,192 50	19,286 14	
12	353 08					3,318 97	12,117 40	25,099 09	286 63
19	627 86		1	44 79		148 45	3,382 95	15,949 09	
						201 90	6,631 56	6,468 82	25 99
							1,213 44	8,691 27	15 84
3	69 63					12 25	754 65	1,621 48	
15	372 36		10	233 77		5,061 73	5,040 22	6,756 57	
6	130 92					180 50	3,107 18	21,860 06	
						239 61	7,861 63	52,698 62	58 42
8	223 28					6 75	606 78	1,663 30	66 43
155	3,956 60	\$69 99	17	562 34	25 00	3,449 04	53,554 90	92,754 78	420 05
52	1,405 97		3	64 30		3,370 57	17,084 78	29,803 51	293 51
							132 56	1,017 84	
54	2,024 90		2	49 37		379 75	24,785 89	48,559 99	362 15
41	1,162 89		2	98 33		461 68	14,358 34	33,440 81	71 54
20	738 45		6	214 59	4 50	3,138 85	7,967 31	11,642 56	144 43
1	1,027 83		11	335 67	100 00	140 90	6,447 97	63,966 73	
						60 68	7,302 67	16,293 52	425 88
18	446 50		9	420 74		44 00	7,140 20	7,470 97	4 87
45	1,364 06		18	419 47	20 00	1,441 83	22,220 27	23,654 57	274 80
47	1,350 56		1	4 96		100 92	20,951 04	46,972 74	311 40
43	1,334 08					276 34	9,687 02	26,173 54	39 68
2	88 15		1	19 66		103 55	5,821 13	29,635 99	117 94
112	2,978 94		12	404 68		538 37	23,153 16	44,181 79	272 62
						6 25	747 38	10,406 23	
60	1,560 06					218 94	6,299 98	25,769 71	1 29
31	889 73						1,248 08	6,890 96	
30	537 82					26 50	3,514 18	4,932 30	39 14
						5 40	5,490 07	5,944 58	185 33
							383 65	6,926 63	19 21
571	12,766 12	173 71	127	3,059 84		3,002 21	29,495 94	106,982 48	359 91
155	4,301 21		5	127 31		3,077 48	5,350 41	18,617 70	2 55
23	821 52					95 71	34,326 68	43,627 37	661 36
169	3,695 10		29	892 77	10 00	91 68	2,263 03	28,142 57	25 07
7	197 62		1	10 04		2,997 73	27,215 00	40,423 75	440 28
1	5 95					43 56	2,104 01	1,926 28	21 50
34	1,093 27		6	273 42		40 16	3,682 26	10,359 79	
59	1,855 09		11	354 11	20 00	159 44	10,064 98	31,771 63	122 70
2	32 64	44 54				597 43	16,080 24	63,785 22	87 90
5	175 45					328 25	1,023 07	7,059 33	
10	405 95		1	49 53		4 50	3,412 05	7,093 22	115 99
						292 40	6,490 54	15,315 68	5 61
9	263 27					5 00	846 41	3,564 93	
156	4,374 82	32 32				40 00	1,905 21	3,683 14	11
						91 74	18,968 35	47,129 90	92 89
						1 00	740 33	3,938 95	
2,033	53,795 72	320 56	221	7,871 42	409 50	36,666 17	514,715 40	1,170,606 67	5,387 56

J. M. MCGREW,
Auditor.

No. 9.—Statement of the receipts and disbursements of the Money-order Office of the United States for the fiscal year ended June 30, 1878.

RECEIPTS.

Balance in the hands of postmasters June 30, 1877		\$1,055,543 45
Amount received for domestic money-orders issued....	\$81,442,364 87	
Amount received for Canadian international money-orders issued	259,382 43	
Amount received for British international money-orders issued	807,183 32	
Amount received for German international money-orders issued	783,416 84	
Amount received for Swiss international money-orders issued	92,280 74	
Amount received for Italian international money-orders issued	105,433 53	
Total issued		83,490,061 73
Amount received for fees on domestic money-orders issued	715,261 20	
Amount received for fees on Canadian international money-orders issued	6,054 50	
Amount received for fees on British international money-orders issued	25,075 75	
Amount received for fees on German international money-orders issued	21,610 50	
Amount received for fees on Swiss international money-orders issued	2,635 25	
Amount received for fees on Italian international money-orders issued	2,816 50	
Total fees		773,453 70
Amount received for premiums, &c.		1,377 75
Amount received for deposits and drafts		66,884,843 02
Amount transferred from postage fund		605,832 33
Amount due postmasters		6,914 71
Total		152,821,946 72

DISBURSEMENTS.

Amount of domestic money-orders paid	\$80,771,455 20	
Amount of Canadian international money-orders paid	339,184 89	
Amount of British international money-orders paid	363,203 18	
Amount of German international money-orders paid	666,812 70	
Amount of Swiss international money-orders paid	53,795 72	
Amount of Italian international money orders paid ..	7,871 42	
Total paid	82,202,323 11	
Amount of domestic money-orders repaid. \$508,455 60		
Amount of Canadian international money-orders repaid	1,186 44	
Amount of British international money-orders repaid	2,960 47	
Amount of German international money-orders repaid	4,326 80	
Amount of Swiss international money-orders repaid	320 56	
Amount of Italian international money-orders repaid	409 50	
Total repaid	517,659 37	
Amount transferred to postage fund	404,669 88	
Amount deposited at first-class offices	67,969,758 56	
Amount paid for incidental expenses	36,666 17	
Amount paid commissions and clerk-hire	514,715 40	
Miscellaneous items	5,387 56	
Balance in hands of postmasters June 30, 1878	1,170,806 67	
Total		\$152,821,946 72

J. M. MCGREW,
Auditor.

OFFICE OF THE AUDITOR OF THE TREASURY
FOR THE POST-OFFICE DEPARTMENT,
Washington, D. C., October 29, 1878.

No. 10.—*Statement showing the revenue which accrued on domestic money-order transactions for the fiscal year ending June 30, 1878.*

Amount received for fees on orders issued.....	\$715,261 20
Amount received for premiums.....	1,377 78
Total	716,638 98
Amount paid for commissions and clerk-hire	\$474,735 51
Amount paid for incidental expenses.....	35,380 30
Lost remittances	2,119 80
Bad debts.....	1,451 00
Net revenue.....	202,952 37
Total	716,638 98

J. M. MCGREW, Auditor.

OFFICE OF THE AUDITOR OF THE TREASURY
FOR THE POST-OFFICE DEPARTMENT,
Washington, D. C., October 29, 1878.

No. 11.—*Statement showing the revenue which accrued on money-order transactions with the Dominion of Canada for the fiscal year ended June 30, 1877.*

Amount of fees received on orders issued.....	\$5,233 60
Excess of commissions received.....	392 86
Net loss.....	163 86
Total	5,790 32
Amount paid for commissions and clerk-hire	\$4,844 92
Amount paid for incidental expenses.....	945 40
Total	5,790 32

J. M. MCGREW, Auditor.

OFFICE OF THE AUDITOR OF THE TREASURY
FOR THE POST-OFFICE DEPARTMENT,
Washington, D. C., October 29, 1878.

No. 12.—*Statement showing the revenue which accrued on money-order transactions with the United Kingdom of Great Britain and Ireland for the fiscal year ended June 30, 1877.*

Amount received for fees on orders issued.....	\$25,656 75
Net loss.....	2,084 18
Total	27,740 93
Amount paid for commissions and clerk-hire.....	\$22,527 72
Amount paid for incidental expenses.....	75 86
Excess of commissions paid.....	4,086 10
Cost of exchange.....	1,051 25
Total	27,740 93

J. M. MCGREW, Auditor.

OFFICE OF THE AUDITOR OF THE TREASURY
FOR THE POST-OFFICE DEPARTMENT,
Washington, D. C., October 29, 1878.

No. 13.—*Statement showing the revenue which accrued on money-order transactions with the German Empire for the fiscal year ended June 30, 1877.*

Amount received for fees on orders issued.....	\$20,135 80
Amount paid for commissions and clerk-hire.....	\$10,845 09
Amount paid for incidental expenses.....	78 50
Excess of commissions paid Germany.....	1,364 93
Cost of exchange.....	200 65
Net revenue.....	7,646 63
	<u>20,135 80</u>

J. M. MCGREW, *Auditor.*

OFFICE OF THE AUDITOR OF THE TREASURY
FOR THE POST-OFFICE DEPARTMENT,
Washington, D. C., October 29, 1878.

No. 14.—*Statement showing the revenue which accrued on money-order transactions with Switzerland for the fiscal year ended June 30, 1877.*

Amount received for fees on orders issued.....	\$2,296 25
Amount paid for commissions and clerk-hire.....	\$565 19
Amount paid for incidental expenses.....	48 50
Excess of commissions paid Switzerland.....	370 75
Cost of exchange.....	14 88
Net revenue.....	1,296 93
	<u>2,296 25</u>

J. M. MCGREW, *Auditor.*

OFFICE OF THE AUDITOR OF THE TREASURY
FOR THE POST-OFFICE DEPARTMENT,
Washington, D. C., October 29, 1878.

No. 15.—*Recapitulation.*

Revenue accrued on domestic transactions, 1878.....	\$202,952 37
Revenue accrued on German international transactions, 1877.....	7,646 63
Revenue accrued on Swiss international transactions, 1877....	1,296 93
	<u>211,895 93</u>
From which deduct—	
Loss on Canadian international transactions, 1877.....	163 86
Loss on British international transactions, 1877.....	2,084 18
	<u>2,248 04</u>
Total revenue.....	<u>209,647 89</u>

J. M. MCGREW, *Auditor.*

OFFICE OF THE AUDITOR OF THE TREASURY
FOR THE POST-OFFICE DEPARTMENT,
Washington, D. C., October 29, 1878.

No. 16.—*Weight of letters and newspapers, &c., sent from the United States to the United Kingdom in British mails, during the fiscal year ended June 30, 1878.*

Lines.	Letters.	Newspapers, &c.
	<i>Grams.</i>	<i>Grams.</i>
Cunard Line	12,761,529	55,874,815
White Star Line	7,915,856	35,165,111
Liverpool and Great Western Steam Company	7,843,883	39,485,106
Inman Line	6,691,162	28,927,220
Hamburg American Packet Company	5,092,338	27,078,122
Anchor Line	907,670	7,226,463
Canadian Line	935,239	5,064,757
American Steamship Company	378,509	2,711,562
North German Lloyd of Bremen	1,765,512	10,459,734
Total	44,991,698	212,992,960
Decrease compared with last fiscal year	1,515,114	2,017,006

J. M. McGREW, Auditor.

OFFICE OF THE AUDITOR OF THE TREASURY
FOR THE POST-OFFICE DEPARTMENT, October 29, 1878.

No. 17.—*Weight of letters and newspapers, &c., sent from the United States to Germany in closed mails through England and France, and by direct steamer, during the fiscal year ended June 30, 1878.*

Lines.	Letters.	Newspapers, &c.
	<i>Grams.</i>	<i>Grams.</i>
North German Lloyd of Bremen, direct	6,822,126	34,611,549
Hamburg American Packet Company, direct	5,571,216	24,560,436
Liverpool and Great Western Steam Company, via England	4,574,107	16,348,246
Cunard Line, via England	5,175,764	14,780,120
North German Lloyd of Bremen, via England	1,464,015	4,207,875
Hamburg American Packet Company, via England	1,235,215	1,763,851
Inman Line, via England	708,906	1,185,048
White Star Line, via England	599,649	305,916
Total	26,170,698	97,763,041
Compared with last fiscal year	272,908	2,605,219
{ Increase		
{ Decrease		

J. M. McGREW, Auditor.

OFFICE OF THE AUDITOR OF THE TREASURY
FOR THE POST-OFFICE DEPARTMENT, October 29, 1878.

No. 18.—*Weight of letters and newspapers, &c., sent from the United States to France during the fiscal year ended June 30, 1878.*

Lines.	Letters.	Newspapers, &c.
	<i>Grams.</i>	<i>Grams.</i>
Hamburg American Packet Company	1,241,470	5,494,627
White Star Line	1,248,052	4,945,605
French Line	1,305,854	5,417,820
Inman Line	1,196,194	4,631,750
Cunard Line	873,566	2,976,995
North German Lloyd of Bremen	439,995	1,156,645
Liverpool and Great Western Steam Company	1,326,744	6,991,931
Total	7,631,895	31,615,573
Increase compared with last fiscal year	730,201	3,500,039

J. M. McGREW, Auditor.

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No. 19.—*Weight of letters and newspapers, &c., sent from the United States to Italy during the fiscal year ended June 30, 1878.*

Lines.	Letters.	Newspapers, &c.
	Grams.	Grams.
Cunard Line.....	660, 838	3, 041, 664
Hamburg American Packet Company.....	379, 564	1, 862, 357
Liverpool and Great Western Steam Company.....	493, 188	2, 254, 226
Inman Line.....	375, 196	2, 241, 524
White Star Line.....	473, 537	2, 658, 444
North German Lloyd of Bremen.....	150, 634	839, 869
Total.....	2, 532, 967	12, 904, 204
Increase compared with last fiscal year.....	189, 475	2, 727, 636

J. M. McGREW, Auditor.

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FOR THE POST-OFFICE DEPARTMENT, October 29, 1878.

No. 20.—*Weight of letters and newspapers, &c., sent from the United States to Belgium during the fiscal year ended June 30, 1878.*

Lines.	Letters.	Newspapers, &c.
	Grams.	Grams.
Cunard Line.....	252, 850	862, 695
Hamburg American Packet Company.....	149, 081	503, 795
Liverpool and Great Western Steam Company.....	132, 590	602, 972
White Star Line.....	163, 078	616, 667
North German Lloyd of Bremen.....	63, 971	214, 835
Red Star Line.....	815	.....
Inman Line.....	125, 533	541, 435
Total.....	887, 928	3, 348, 399
Increase compared with last fiscal year.....	47, 892	562, 565

J. M. McGREW, Auditor.

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FOR THE POST-OFFICE DEPARTMENT, October 29, 1878.

No. 21.—*Weight of letters and newspapers, &c., sent from the United States to Denmark during the fiscal year ended June 30, 1878.*

Lines.	Letters.	Newspapers, &c.
	Grams.	Grams.
Hamburg American Packet Company.....	748, 900	2, 132, 875
North German Lloyd of Bremen.....	344, 370	899, 011
Inman Line.....	1, 005	1, 660
Total.....	1, 094, 275	3, 039, 639
Compared with last fiscal year.....	<div> <div>Increase..</div> <div>Decrease..</div> </div>	<div> <div>264, 702</div> <div>56, 600</div> </div>

J. M. McGREW, Auditor.

OFFICE OF THE AUDITOR OF THE TREASURY
FOR THE POST-OFFICE DEPARTMENT, October 29, 1878.

No. 22.—*Weight of letters and newspapers, &c., sent from the United States to the Netherlands during the fiscal year ended June 30, 1878.*

Lines.	Letters.	Newspapers, &c.
	Grams.	Grams.
White Star Line	211, 750	885, 459
Cunard Line	274, 505	719, 301
Iuman Line	159, 670	634, 259
Liverpool and Great Western Steam Company	196, 419	522, 984
Hamburg-American Packet Company	191, 882	670, 730
North German Lloyd of Bremen	81, 863	294, 262
Netherlands-American Steam-Navigation Company	3, 696	.....
Total	1, 119, 785	3, 786, 995
Compared with last fiscal year	61, 555	437, 140
{ Increase
{ Decrease

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OFFICE OF THE AUDITOR OF THE TREASURY
FOR THE POST-OFFICE DEPARTMENT, October 29, 1878.

No. 23.—*Weight of letters and newspapers, &c., sent from the United States to Switzerland during the fiscal year ended June 30, 1878.*

Lines.	Letters.	Newspapers, &c.
	Grams.	Grams.
Cunard Line	457, 377	1, 700, 278
Liverpool and Great Western Steam Company	370, 315	1, 712, 760
White Star Line	359, 945	1, 761, 485
Hamburg-American Packet Company	312, 229	1, 473, 105
Iuman Line	273, 974	1, 336, 219
North German Lloyd of Bremen	130, 196	664, 032
Total	1, 904, 036	8, 647, 879
Increase, compared with last fiscal year	91, 787	201, 384

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FOR THE POST-OFFICE DEPARTMENT, October 29, 1878.

No. 24.—*Weight of letters and newspapers, &c., sent from the United States to Spain during the fiscal year ended June 30, 1878.*

Lines.	Letters.	Newspapers, &c.
	Grams.	Grams.
Cunard Line	160, 243	909, 796
White Star Line	115, 864	669, 309
Hamburg-American Packet Company	87, 786	462, 769
Iuman Line	88, 777	559, 510
Liverpool and Great Western Steam Company	101, 743	527, 422
North German Lloyd of Bremen	39, 962	203, 520
Total	594, 375	3, 352, 326
Increase, compared with last fiscal year	4, 400	453, 631

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OFFICE OF THE AUDITOR OF THE TREASURY
FOR THE POST-OFFICE DEPARTMENT, October 29, 1878.

No. 25.—*Weight of letters and newspapers, &c., sent from the United States to Sweden during the fiscal year ended June 30, 1878.*

Lines.	Letters.	Newspapers, &c.
	<i>Grams.</i>	<i>Grams.</i>
Hamburg-American Packet Company.....	1, 475, 010	3, 520, 335
North German Lloyd of Bremen	707, 320	1, 743, 764
Total	2, 182, 330	5, 264, 099
Compared with last fiscal year	<div> <div>Increase</div> <div>Decrease</div> </div>	<div> <div>632, 370</div> <div></div> </div>
	222, 509	

OFFICE OF THE AUDITOR OF THE TREASURY
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No. 26.—*Weight of letters and newspapers, &c., sent from the United States to countries and colonies (other than European) of the Postal Union during the fiscal year ended June 30, 1878.*

Countries and colonies.	Letters.	Newspapers, &c.
	<i>Grams.</i>	<i>Grams.</i>
Cuba	3, 771, 858	12, 027, 729
Japan	791, 285	6, 476, 158
Hong-Kong	636, 488	2, 174, 212
Jamaica	216, 963	1, 059, 697
Bermuda	334, 973	2, 242, 157
St. Thomas	166, 414	700, 861
Brazil	145, 280	403, 232
Porto Rico	65, 529	287, 766
New Caledonia	5, 105	
Total	6, 133, 695	25, 371, 812

OFFICE OF THE AUDITOR OF THE TREASURY
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No. 27.—*Number of letters exchanged between the United States and non-Postal Union countries during the fiscal year ended June 30, 1878.*

Countries.	Number of letters.	
	Received.	Sent.
Nassau, Hayti, &c	57, 802	107, 863
Panama, Central America, &c	135, 670	59, 587
New Zealand, Australia, &c	39, 940	134, 134
Mexico	49, 028	50, 390
Venezuela	10, 658	13, 735
Guatemala	9, 223	10, 597
Ecuador	918	3, 949
Nova Scotia, &c		15, 152
New Granada		850
Total	303, 238	394, 313

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No. 23.—*Weight of letters and newspapers, &c., sent from the United States to Norway during the fiscal year ended June 30, 1878.*

Lines.	Letters.	Newspapers, &c.
	<i>Grams.</i>	<i>Grams.</i>
Hamburg American Packet Company	1, 219, 048	2, 707, 691
North German Lloyd of Bremen	614, 401	1, 047, 040
Inman Line	945	750
Total	1, 834, 394	3, 755, 481
Decrease compared with last fiscal year	64, 418	157, 540

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OFFICE OF THE AUDITOR OF THE TREASURY
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No. 29 *Weight of letters and newspapers, &c., sent from the United States to European countries during the fiscal year ended June 30, 1878.*

Countries.	Letters.	Newspapers, &c.
	<i>Grams.</i>	<i>Grams.</i>
United Kingdom of Great Britain and Ireland	44, 291, 698	212, 992, 960
Germany	96, 170, 698	97, 763, 041
France	7, 651, 895	31, 615, 573
Italy	2, 532, 967	12, 904, 204
Belgium	887, 928	3, 348, 399
Denmark	1, 094, 275	3, 039, 639
Netherlands	1, 119, 785	3, 786, 985
Switzerland	1, 904, 036	8, 647, 879
Spain	594, 375	3, 352, 346
Sweden	2, 182, 330	5, 264, 029
Norway	1, 834, 394	3, 755, 481
Total	90, 264, 381	386, 470, 586
Compared with last fiscal year { Increase	9, 210, 222
{ Decrease	11, 366, 849

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OFFICE OF THE AUDITOR OF THE TREASURY
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